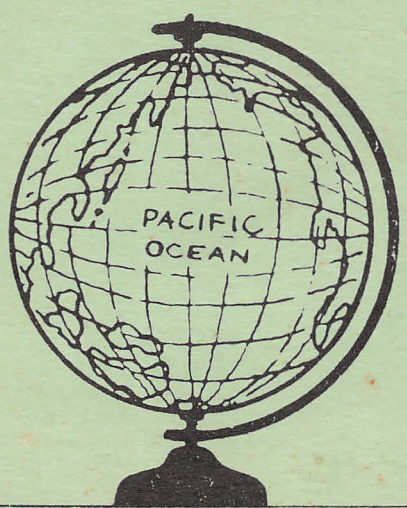
UNITED STATES NAVY

A GUIDE TO LANDSCAPING & GROUNDS MAINTENANCE in Hawaii, Guam, & Tropical Pacific Areas



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LANDSCAPE PLANNING

Landscaping in Hawaii, Guam and other tropical areas presents some problems unique to tropical and sub-tropical climates.

Unlike many parts of the world, in the tropics and sub-tropics, no great skill is required to establish many species of ornamental trees and shrubs. Plants are generally inexpensive and many species are readily available. This often results in a poor choice of species, poor placement and OVERPLANTING.

At best, poor landscaping is unattractive. At worst, it can cause damage to utility lines and buildings, as well as inconvenience to the occupants and excessive effort and expense for routine grounds maintenance.

The Basic Drawing

Proper landscaping requires a plan. The more complete the plan, the better the results.

The first step in planning is to obtain a drawing or map of the area to be landscaped. It should show the boundaries of the property as well as any buildings, fences, power, telephone, water, and sewer lines located on it. For military property, utilities drawings are generally available and are best suited for this purpose. If no drawings are available and the area is relatively small, such as a single yard, it is not too difficult to prepare a drawing. This does not need to be a work of art, but it must be to scale.

On this drawing, the existing trees and shrubs to be saved should also be sketched in (to scale) and if possible, identified.

This booklet contains illustrations and information about some of the most popular species used for landscaping. Reference books are listed in the bibliography.

Establishing Goals

The boundaries of the property, the size, shape, and location of structures and utilities have a great influence on planning. These factors limit what can be done on any property, and suggest what should be done.

Landscaping is similar to camouflage. Its primary purpose is to soften or "break-up" the outline of man-made objects, and in doing so, to improve the appearance of the area.

The next step is to decide exactly what the goals of the project are. These may be to provide:

... a barrier from wind or noise.

... shade.

... privacy.

... screens for unattractive structures such as telephone poles, chain-link fences, electrical transformers, dumpsters or similar items.

... delineation for property boundaries and entranceways.

... beauty in an otherwise unattractive area.

These goals should be indicated on the drawing. The drawing will provide an idea of how much space is available to accomplish these goals.

Species Selection

The next step is to prepare a list of plants which might be used to accomplish the desired goals.

Many species of plants, with a wide range of colors, shapes, sizes and growth habits are available. This booklet contains illustrations and information on some of the more common species used for landscaping. For more information, reference books are listed in the bibliography.

There is no single, comprehensive listing which describes and gives the growth habits of all species used for landscaping in tropical and semi-tropical areas. Because of this, errors in the selection and placement of plants are common. In military projects, a single error, such as the selection of an unsuitable species may be repeated several hundred times in areas such as family housing. Unlike commercial developments where private homeowners may remove or replace vegetation as each sees fit, plantings on government property are seldom removed.

Scientific Names: Scientific names have a very important purpose in landscaping. They identify exactly what plant is called for. They are the "specifications" for plants.

The first word in the scientific name is the genus. This identified a closely related group of plants. It is always begun with a capital letter. The second word is the species. It identifies the exact plant within a group. It is begun with a lower case letter. If, instead of a species name, the letters sp. or spp. are used, that means either the species is unknown, or that all species within the genus are included.

Unlike common names, which may vary with locality, the same scientific name applies to a plant no matter where it is found. For example, Calophyllum inophyllum is the scientific name for a certain type of tree. In Hawaii, the common name for this same tree is "True Kamani", on Guam it is called "Palo Maria", on Diego Garcia it is called "Takemaka", and in other parts of the world "Alexandrian Laurel". The use of the scientific name immediately identifies the plant in any and all locations. In addition, the same plant may have several common names even in the same location; or several completely different plants may have the same common name. The use of the scientific name eliminates any confusion.

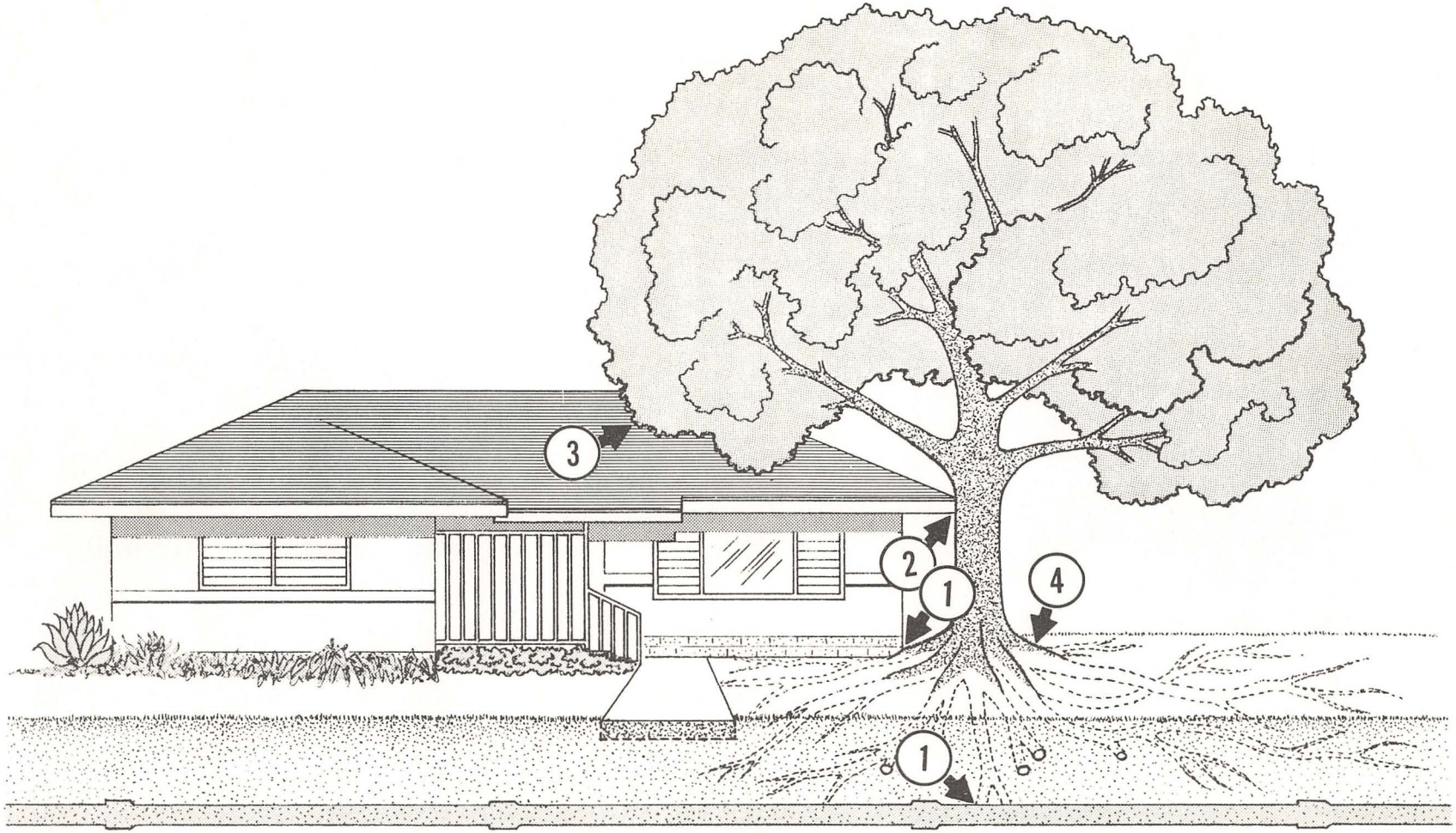
Size and Spacing: The species selected should be those which will not only accomplish the desired goals, but will physically fit within the area to be landscaped, not only at the time of planting but during the entire projected life of the adjacent structures. For new construction, this will generally be a period of 30 years. After 30 years, temporary buildings will usually be ready for demolition and permanent buildings will be ready for major renovation. Alterations to landscaping can be done as part of demolition or major renovation projects if necessary. When landscaping an area with existing buildings, subtract the age of the buildings from 30 years and adjust the projected growth of the trees accordingly.

A common and expensive mistake is to plant large, rapidly growing species too close together or too close to buildings and utilities. The following species are among those noted for causing damage to buildings and utilities. Minimum spacing distances from structures are listed here for emphasis.

COMMON NAME	SCIENTIFIC NAME	MINIMUM DISTANCE
Elephant Ear (Earpod)	Enterolobium cyclocarpum	50 feet
Monkeypod (Raintree)	Samanea saman	40 feet
Banyan tree *	Ficus spp. (most species)	40 feet

*The genus Ficus contains many species ranging from ground cover to huge trees. Be sure to know the characteristics of the species you plant

Minimum spacing distances for other species are included with the species descriptions in this booklet. These spacing distances are based on the crown and root spread of the species after 30 years growth. (The spread of roots is generally comparable to the spread of the crown, and for landscaping purposes they can be considered to be identical.)



BE CAREFUL WHAT YOU PLANT AND WHERE YOU PLANT IT

Trees continue to grow throughout the life of buildings and other improvements. Make sure that the species to be planted will not grow to a size which will:

1. cause root damage to foundations, sidewalks, curbs, sewer, and waterlines.
2. touch the building, causing mechanical damage, noise, or easy access for rats and insects.
3. drop leaves on the roof.
4. create mowing problems.

Either plant the tree farther away or choose a smaller species.

Large trees, planted in narrow strips will:

(1) crack curbs, roads, and sidewalks
(2) touch telephone and powerlines, requiring constant trimming
(3) interfere with storm drains

Use small, easily trimmed trees and shrubs with small root systems, or use only grass and ground cover in such areas.

Future Maintenance: After the list of candidate species has been prepared, the plan and choice of species should be reviewed from the standpoint of future maintenance.

In tropical and semi-tropical areas, landscape maintenance is a year around obligation. Each tree, shrub, and plot of grass or ground cover requires maintenance. Keep in mind that regardless of who does the maintenance: whether it be the tenants, volunteers, contract, or maintenance personnel assigned to the area, there is a limit to how much maintenance work is available, and that this continuing effort is required for the life of the plants.

A landscape plan must always be a compromise between what might be done, tempered by a realistic consideration of the amount of maintenance required.

Tropical plants vary greatly in the amount of maintenance they require. It is important to know the characteristics of each species under consideration. For example, trees which continually drop leaves will require continual raking if they are in "Improved" areas, while evergreens, or certain species of palms, or trees which drop very fine leaflets may require considerably less raking. Similarily, trees which have root systems that extend along the surface of the ground, such as some species of banyans (Ficus spp.) and monkeypod (Samanea saman), require that the grass around the base of the tree be clipped by hand or with a small power tool where lawnmowers cannot reach between the roots. This problem may be accentuated where soils are shallow (for instance where soil has been spread over hard packed coral fill).

Restricted Species: Certain species, especially large, fruiting trees, cause maintenance problems due to excessive debris, and may also be an attractive nuisance. Others have growth habits that generally make them difficult to maintain. Such species should not be used in "Improved" areas unless there is a compelling reason. These species include:

COMMON NAME(S)	SCIENTIFIC NAME
Mango tree	Mangifera indica
Breadfruit tree (Ulu)	Artocarpus altilis
Avocado tree (Alligator pear)	Persea americana
Bamboo	Bambusa spp.
"	Phyllostachys spp.
"	Pseudosasa spp.
"	Pleioblastus spp.
"	Melocanna spp.
"	Dendrocalamus spp.
"	Schizostachyum spp.
"	Sinocalamus spp.
False Kamani tree (Tropical Almond)	Terminalia catappa
Ironwood tree (Australian Pine)	Casuarina spp.
Coconut Palm	Cocos nucifera

Both the False Kamani and the Ironwood trees will grow in sand or in very poor soil directly exposed to salt-laden winds from the ocean. For these reasons, they may be used as wind breaks to protect buildings directly fronting on the ocean.

Coconut palms are probably the least desirable species of palms to use for landscaping because they present problems of cleaning and trash disposal. Mature trees produce approximately 100 coconuts per year and about a dozen fronds. If they are not cleaned at least once a year (and preferably every six months) there is the danger of injury from falling coconuts. They also harbor rats. Such cleaning must be done by professional tree trimmers. Since there are few, if any, barefoot tree trimmers remaining, tree trimmers must either use specialized heavy equipment or climbing spikes. The use of heavy equipment is very expensive and each time a tree is climbed with climbing spikes, it is damaged. This makes it subject to fungus infection, reduces attractiveness, and still costs money.

The growth rate of coconut palms is not as uniform as many other species of palms, and their form varies from straight to very curved. If a uniform, formal appearance is desired, this species should not be used.

Coconut palms should never be planted in areas such as back yards, where vehicular access is restricted. This greatly increases the problems and costs of maintenance. For safety reasons, they should never be planted above patios, driveways or bus stops.

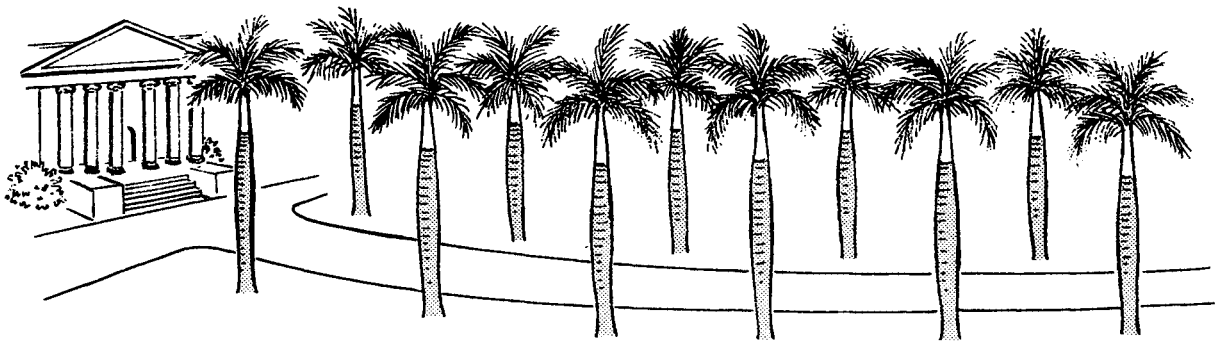
Special Considerations

Housing Areas: When landscaping housing areas, there is a tendency to establish a pattern for one unit and repeat it many times, using the same species of plants and similar planting spots at each unit. This is generally a poor practice, especially in high density housing areas, since it tends to accentuate the regimented look of already similar units.

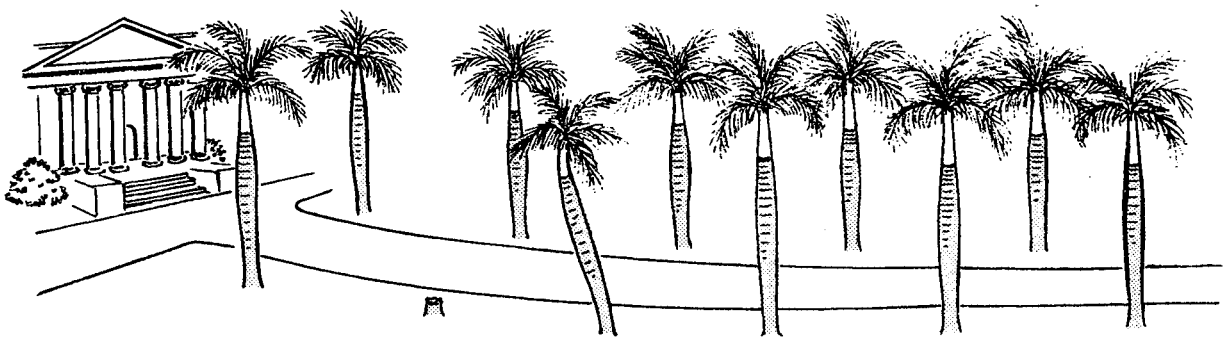
Where large shade trees are desired, and space permits, they should be shared between units. Use care in lining streets with a single species of trees. Most of the more showy, flowering species have a period when they drop excessive debris and a dormant period when they are devoid of flowers and may be completely bare. During these periods the trees appear sick (or dead) and in quantity tend to give an area a desolate appearance. It is generally better to use several different species so that at any given time there is some greenery and/or flowers.

Keep in mind that grounds maintenance in housing areas is often done by tenants whose military member of the family may be absent for extended periods.

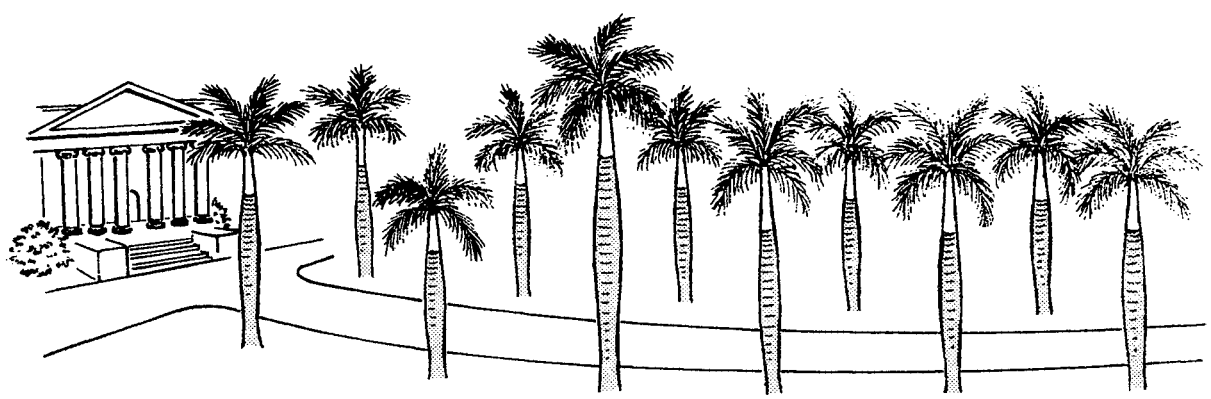
It is best to avoid planting palms in columns (or rows) except in formal areas where special maintenance efforts are justified.



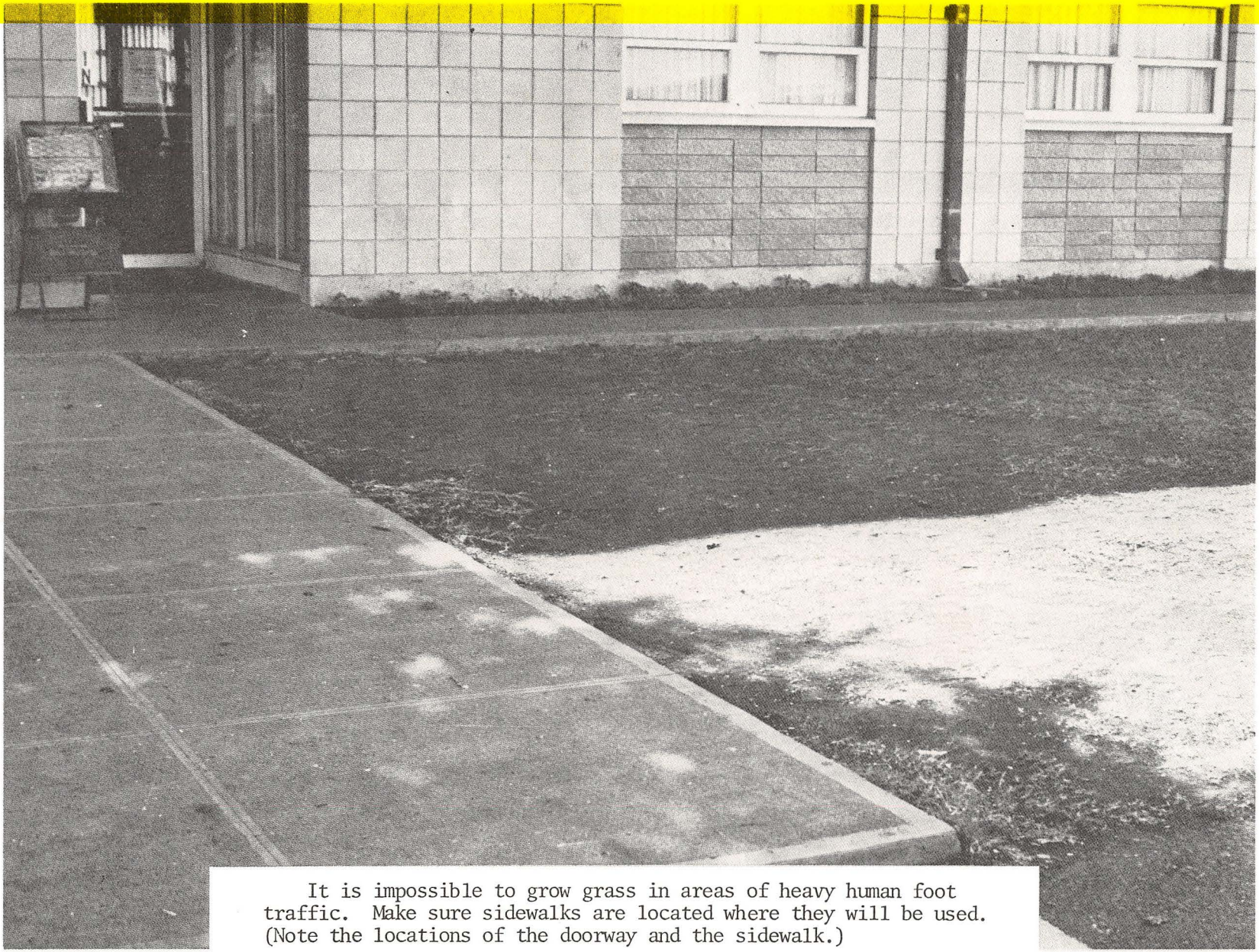
In many instances, one or more of the trees die or become deformed due to injury, disease, or improper planting techniques, leaving a ragged appearance.



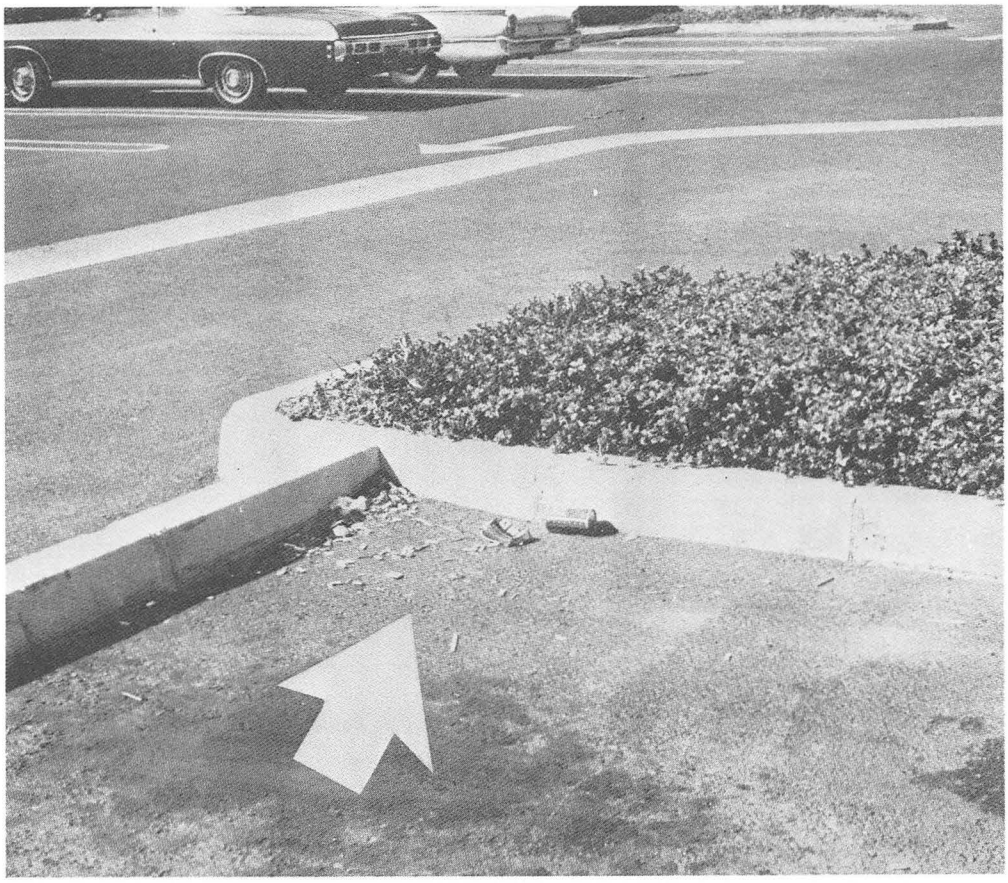
Efforts to obtain replacements are usually not satisfactory since it is seldom possible to find replacements of the same height.



If a column (row) of palms is desired, extra palms of the same species should be planted at the same time elsewhere on the property so that they can later be used for transplanting to the columns if necessary.



It is impossible to grow grass in areas of heavy human foot traffic. Make sure sidewalks are located where they will be used. (Note the locations of the doorway and the sidewalk.)



This is an example of the type of debris generated near commercial areas, such as exchanges, theatres and commissaries. This debris is very difficult to remove from ground cover. When landscaping, it is generally better to use concrete, crushed rock, or coral chips in very small areas. In larger areas use grass.

This type of debris is usually not a major problem near administrative areas. Ground cover can generally be used without problems.

Commercial Areas and Schools: Commercial areas such as exchanges, commissaries, theatres, and shopping centers, as well as school and athletic fields are subject to high human litter. Ground cover species (other than grass) should be used sparingly, if at all, around such areas. Litter such as cigarette filters, candy wrappers, bottle caps, pull tops, bits of paper and other trash fall in the ground cover and must be removed by hand. All plant species used in such areas should be those noted for durability and low maintenance.

Playgrounds and Parks: Certain types of plants should not be used in playgrounds, especially those for pre-school children ("Tot-lots"). Plants to be avoided include those which:

1. are POISONOUS, such as Oleander (Nerium oleander)
   Yellow Oleander or "Be-still Tree" (Thevetia peruviana)
   Castor Bean (Ricinus communis)
   Angels Trumpet (Datura candida)
   Poinsettia (Poinsettia plucherrima)

A special note on poisonous plants: many species of plants are mildly poisonous, and a few are very poisonous. The effects of the poisons are not well understood and may vary according to the susceptibility of the individual. Reports of poisonings are rare. Plants are potentially no more dangerous to children than many common household items such as chlorine bleach, aspirin, scouring powder, safety pins and buttons. Small children should be warned of the danger and watched constantly. IF YOU SUSPECT THAT A CHILD HAS BEEN POISONED BY A PLANT, TAKE THE VICTIM TO THE NEAREST MEDICAL FACILITY AND TAKE SOME LEAVES OF THE PLANT WITH YOU FOR IDENTIFICATION.

2. have THORNS, such as Kiawe (Prosopis pallida)
   Opiuma or "Manila Tamarind" (Pithecellobium dulce)
   Natal Plum (Carissa macrocarpa)
   Date Palms (Phoenix spp.)

3. STAIN CLOTHING, such as Croton (Codiaeum variegatum)
   Bananas (Musa spp.)

4. ENCOURAGE CLIMBING (especially fragile species), such as
   Plumeria (Plumeria spp.) or others such as
   Norfolk Pine (Araucaria heterophylla) or
   Cook Pine (Araucaria columnaris)

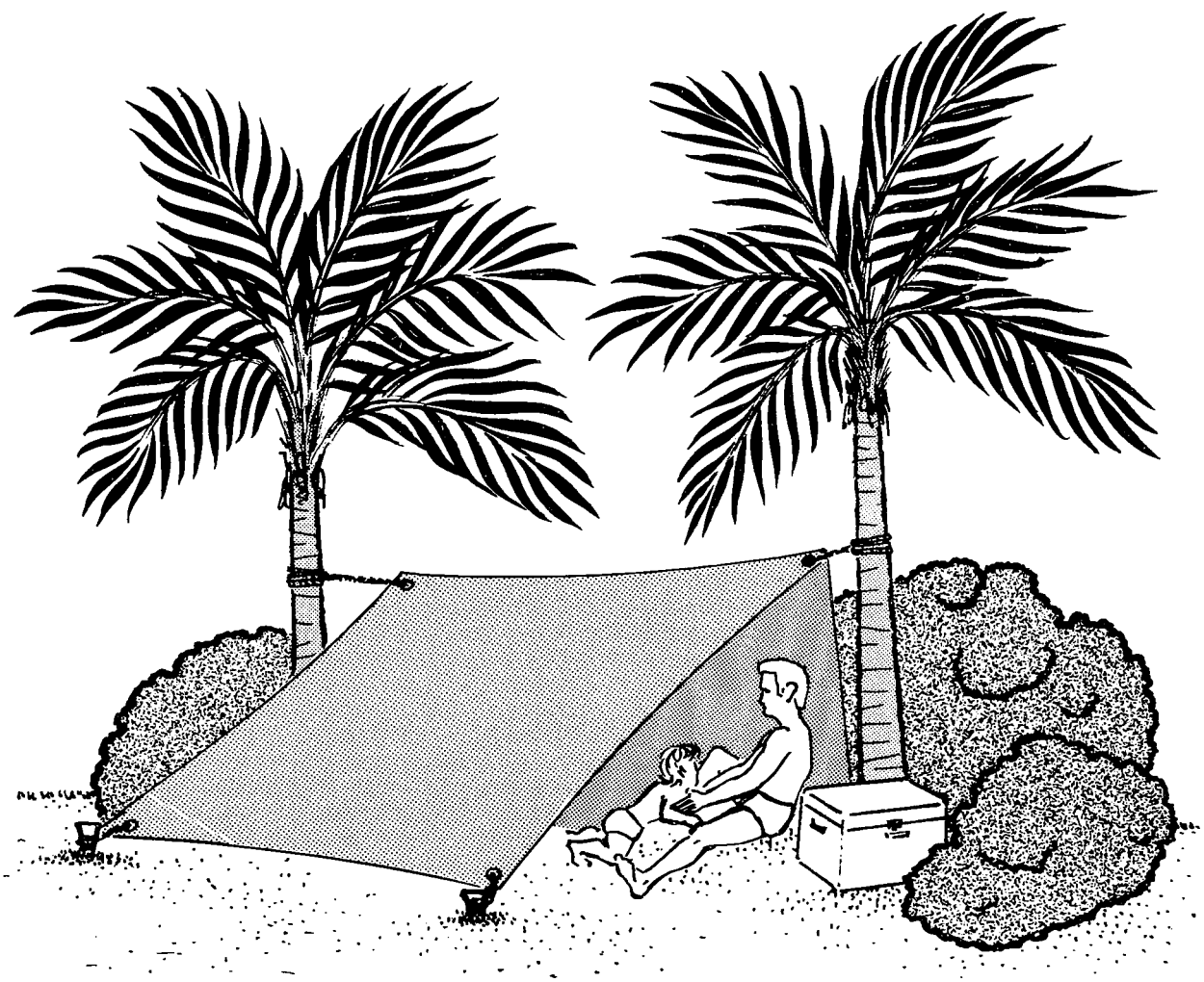
5. otherwise create a NUISANCE or DANGER to young children, such as Ironwood (Casuarina spp.) which drops small cones that are very uncomfortable to walk on with bare feet, or any species with attractive, brightly colored seeds which children may attempt to swallow.

Where space permits, a large shade tree should be planted to shade part of the play area and to provide shade for adults watching the children.

Playgrounds and parks for older children and adults also require sturdy, thornless, non-toxic plants. Where possible, trees should usually be those which grow straight trunked (without branches) to a height of 10 feet or more to discourage climbing.

Persons using parks, especially beach parks, naturally gravitate toward areas of trees and shrubs to set up their picnic or camping equipment. Proper spacing of such plantings will provide attractive surroundings and will insure even distribution of use to prevent unnecessary crowding.

In semi-improved park areas, each site should contain trees situated so that campers can string ropes to support tents or tarps for protection from sun, wind, or rain. Since picnickers seldom bring shelter, some shade and protection from the wind should be provided at each site by means of shrubs or low trees. Trees and shrubs should be thornless and resistant to wind and salt spray if used near beaches.



This narrow strip of grass
(1) is subject to heavy foot traffic
(2) is difficult to mow because of the automobiles and parking space signs
(3) lacks water sprinklers

It would have been better to put the grass where the sidewalk is, or to eliminate the grass completely.

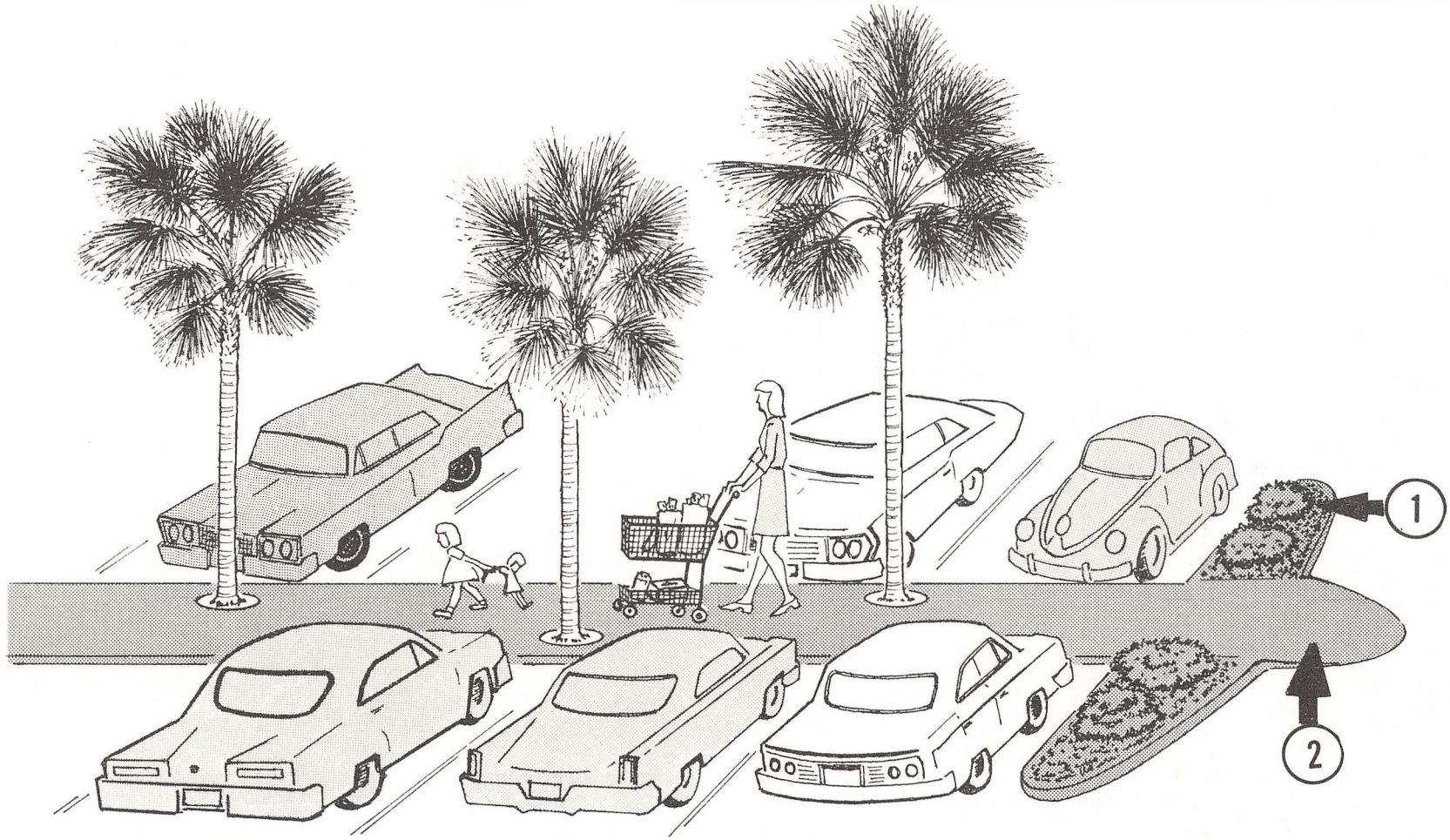
Parking Lots: Small parking lots (less than 50 spaces) may require little, if any, internal landscaping. The establishment and maintenane of landscaping in such areas requires the installation of a sprinkler system or the frequent manipulation of sprinklers and garden hoses. The costs and effort required to maintain such areas may be far out of proportion to the benefits derived. It may be better to landscape the area surrounding the parking lot.

Even in large parking lots, very small islands and very narrow parking or medial strips should not be planted with grass, ground cover, or shrubbery since these areas are expensive to maintain and tend to be subject to foot traffic which causes excessive wear and damage to the plants. Islands or medial strips of sufficient size should be planted with trees, both to increase their attractiveness and to provide shade for parked cars. It is not necessary to shade the entire paved area, merely some of the parking spaces. Therefore, species with a mature crown spread of 20 feet diameter are generally sufficient. Be sure that the species selected do not drop fruit or flowers which are corrosive to, or stain the paint of automobiles.

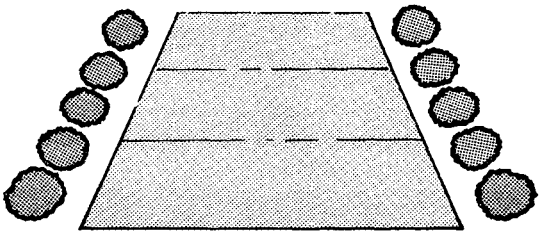
Where space allows, the parking strips should be wide enough to permit a pedestrian walkway in front of the parked cars. This is especially valuable around shopping centers or primary schools so that small children need not walk in the automobile traffic lanes. Trees within the parking strips may be staggered to facilitate pedestrian use. Tree species should be chosen with special care to insure that as the trees mature, root systems do not lift concrete curbing or crack parking lot pavement.

In commercial areas, both ends of the parking strip should be sloped to accommodate shopping carts; and at medical facilities or other appropriate areas for the use of wheel chairs.

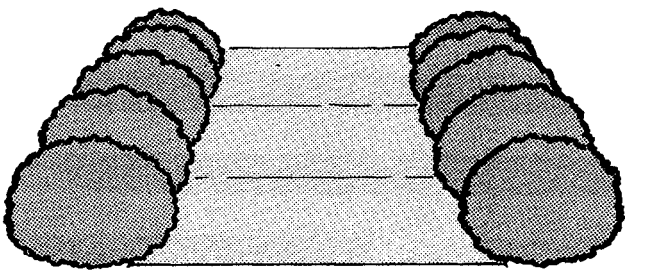
Tall shrubs which obscure vision should not be used in parking lots, particularly those which may be used by children, such as those adjacent to schools, theatres, commissaries or exchanges.



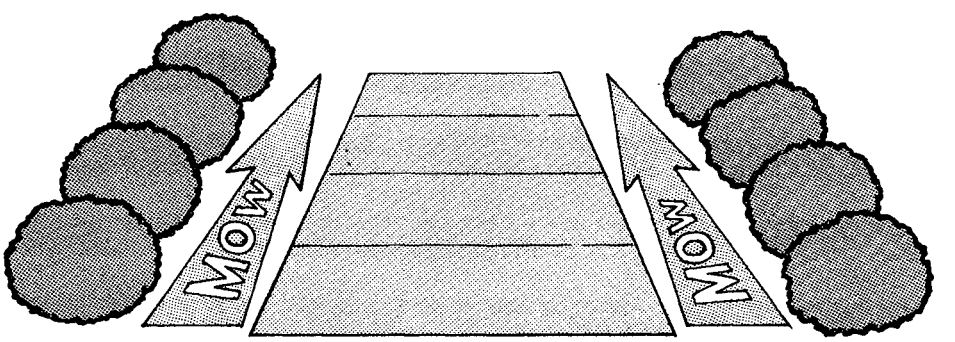
Where possible, parking lots for schools, recreational or commercial areas, should be provided with a walkway between the parked cars so that small children have a minimum exposure to traffic. Many species of palms (not coconut) are suitable for planting in such areas. (1) For safety, shrubs used in landscaping parking lots should not exceed 2 ft. in height. (2) Walkways should be sloped to accommodate shopping carts, wheel chairs, and baby strollers.



Do not plant shrubs or hedges too close to sidewalks.



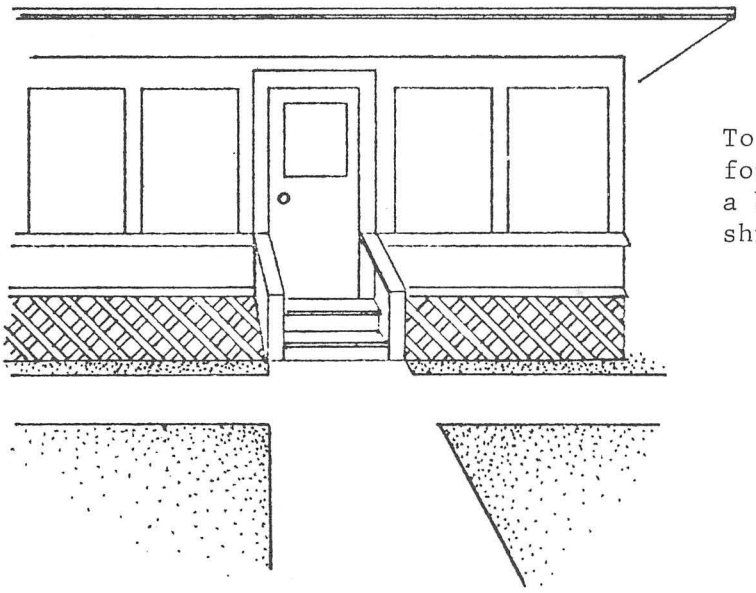
Growth of the shrubs will reduce walking space and make maintenance difficult. If the shrubs are trimmed to clear the sidewalk, they must also be trimmed on the side away from the sidewalk. This may result in very narrow, butchered looking plants and hedges.



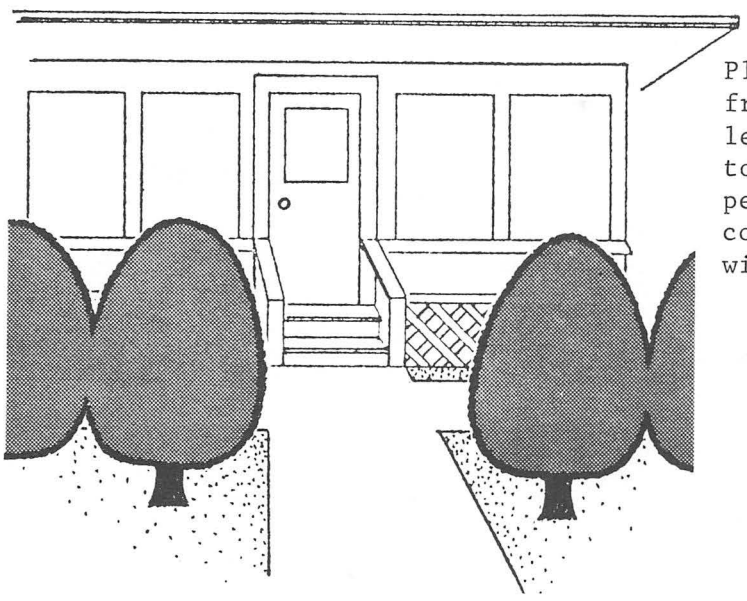
Plant far away from the sidewalk to allow the plants to grow to the desired size with enough space left to run a lawnmower between the sidewalk and the plants.

Shrubs which touch buildings provide easy access for insects (especially termites, cockroaches and ants) and create conditions for mold and decay. They also make it difficult to paint buildings, and tend to make it hotter and more humid inside the building by reducing air circulation.

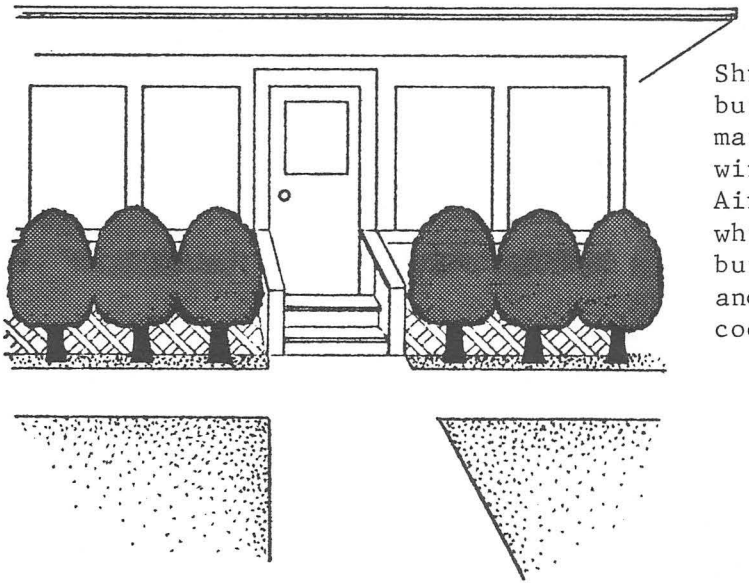
SHRUBBERY WILL NEVER REPLACE CURTAINS!



To screen unattractive foundations or to brighten a building by planting shrubbery:



Plant shrubs at least 30 inches from buildings and where possible, leave enough room for a lawnmower to trim around them. As a rule, a person should be able to walk completely around a building without damaging shrubbery.



Shrubs planted too close to buildings make it difficult to maintain the shrubs, wash windows, or paint the buildings. Air circulation is also reduced which increases humidity in the buildings, causing mold and rot, and giving easy access to termites, cockroaches, and other insects.

Windbreaks and Noise Barriers: Anything which interrupts either wind or noise can be used as a barrier. However, since both wind and noise bounce off hard surfaces, metal, concrete, and asphalt are worst, crushed rock and crushed coral are better, and vegetation is best. The goal should be to absorb wind or noise rather than merely deflecting it.

Most types of vegetation are suitable for absorbing wind or noise. Generally tall, dense vegetation is most effective. Species which lose their leaves during a period of the year and are bare, should not be used for noise barriers or windbreaks. Most of the showy, flowering species such as Royal Poinciana (Delonix regia), Shower trees (Cassia spp.), and some species of Plumeria (Plumeria spp.) are in this category.

Some species of trees and shrubs are not wind resistant and may be permanently deformed by prolonged exposure to winds. Other species are extremely brittle and may break when exposed to high winds or due to shallow root systems, may topple when they have grown to large size.

To be most effective, noise barriers should be as close to the source of the noise as possible.

Completing the Plan

After considering the goals of the plan, the size, minimum spacing and growth habits of the plants, the maintenance requirements of each species, and the special considerations according to the planned use of the area; the landscape drawings should be prepared on drawings which show buildings and utilities.

On each sheet of the landscape drawings:

(1) number each planting spot, beginning with the number 1.

(2) where possible, show the actual distance from the closest building or any suitable reference point.

(3) at each planting spot show an alphabetical symbol * designating the species to be planted. For alphabetical symbols use the first letter of the genus and the first letter of the species in the scientific name. For example: Eucalyptus camaldulensis = Ec.

(4) draw trees to scale according to their projected crown spread at age 30 years for new construction. For landscaping around existing buildings, subtract the age of the structures from 30 years and reduce the size of the crown spread accordingly, since the trees will not grow for a full 30 years before the building is due to be demolished or renovated.

(5) summarize the species shown on each sheet in a list giving the total number of each species, alphabetical symbol, scientific name, common name, and height of the plants to be used, according to the following example:

NAVFACDRWG NO. 1325350

Total Number	Alphabetical Symbol	Scientific Name	Common Name	Plant Height
23	Ec	Eucalyptus camaldulensis	River Redgum	6 feet
14	Ah	Araucaria heterophylla	Norfolk Pine	6 feet
6	Re	Rhapis excelsa	Bamboo Palm	4 feet

Size: Landscaping contracts should specify a minimum height for each species to be planted. Terms such as "seedlings", "5 gallon can", and "large trees", although in common use in the nursery business, are vague and should not be used. The contract should contain a master list of all species to be planted, giving the: (1) Total Number of Each Species, (2) Scientific Name, (3) Common Name, (4) Minimum Height. The contract should include the following statement:

"All plants shall equal or exceed the minimum height specified in the master list."

Form and Condition: Do not permit the use of poorly formed or "crippled" plants. Such plants require special pruning and care and generally grow into poorly formed, unattractive trees and shrubs. Contracts should include the following statement:

"All plants shall be well-formed and disease-free. The Government reserves the right to reject poorly-formed, root-bound, or diseased specimens."

Substitution: Because sufficient quantities of the required plants (contained in the master list and shown on the landscape drawings) may not be available at the time of planting, provisions should be made to permit substitutions. Contracts should include the following statement:

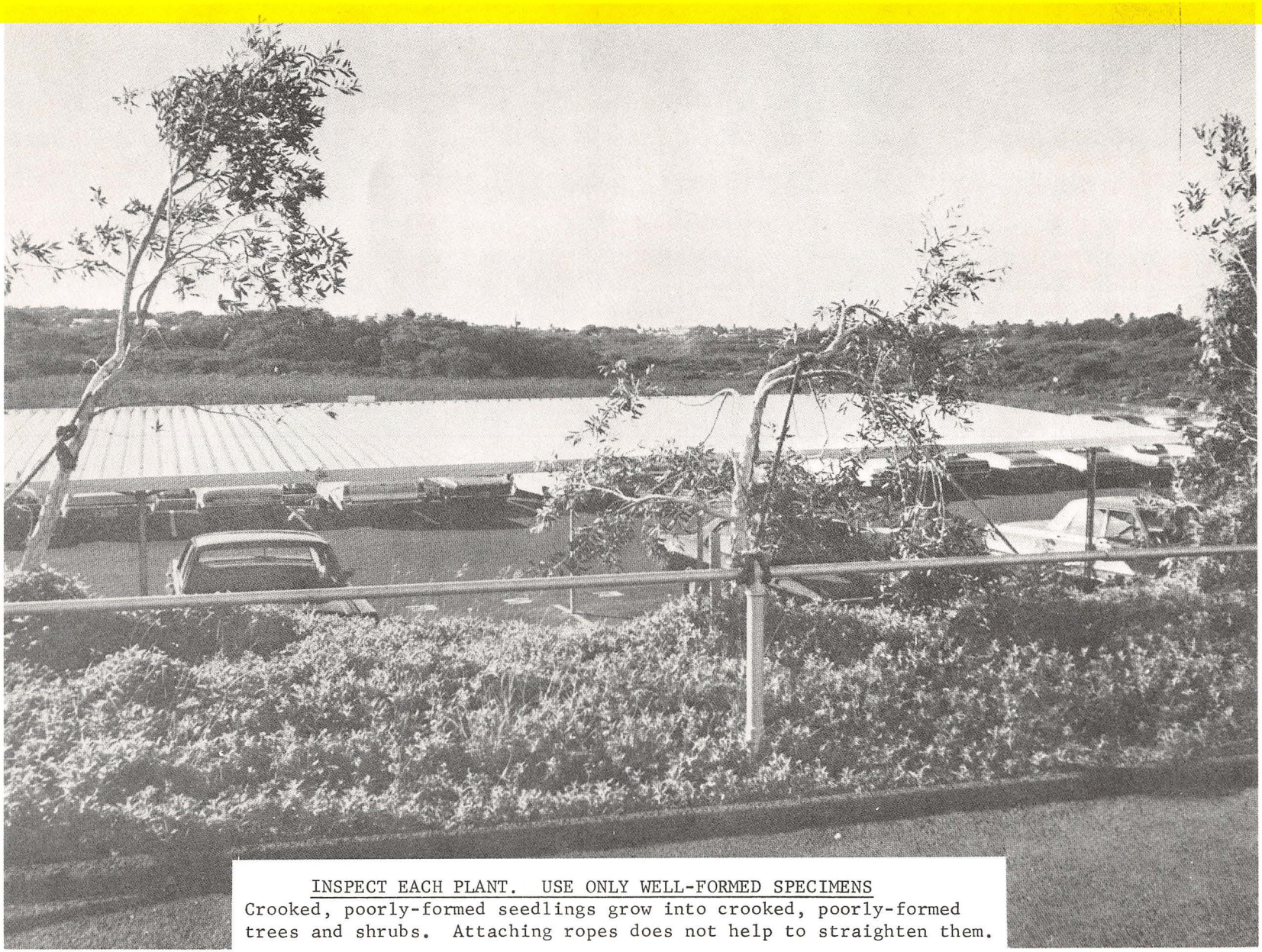
"In the event that specified plants are not available in sufficient quantity, or of sufficient size, the contractor may submit a list of proposed substitutions. This list shall contain scientific and common names and sizes of the proposed substitutions, along with the drawing number and planting spot number of each proposed substitution, according to the following example:

NAVFAC DRWG NO. 1325350

Planting spot numbers - 2, 13, 31, 37, 48, 52, 61, 62, 71, 72, & 73

Specified Plant - Eucalyptus camaldulensis River Redgum 6 feet
Proposed Substitute - Eucalyptus deglupta Mindinao Gum 6 feet

Such proposed subtitutions shall be subject to the approval of the authorized Government representative."



INSPECT EACH PLANT. USE ONLY WELL-FORMED SPECIMENS

Crooked, poorly-formed seedlings grow into crooked, poorly-formed trees and shrubs. Attaching ropes does not help to straighten them.

Planting Spots: In the area to be landscaped, the proposed planting spots should be marked with a stake showing the spot number and the species symbol (or if feasible, the potted plant may be placed at the spot). Prior to actual planting, the location of each stake (or potted plant) should be inspected and approved (or minor adjustments made simply by moving the stake or pot).

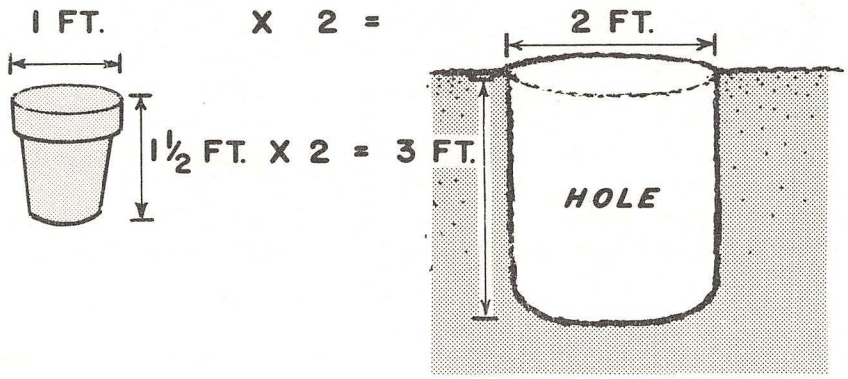
Topsoil: The term "topsoil" means only the soil on top, nothing else. In general use, it implies a soil which is naturally rich in plant nutrients, containing a reasonable amount of organic matter, with a texture suitable for optimum plant growth (friable). This type of "topsoil" is formed by the natural aging of the parent material (usually rock of some type) combined with debris from plant growth, over countless thousands of years. As a general rule, the older the area is geologically, the deeper and better the "topsoil". Most Pacific island areas are geologically so young that very little "topsoil" has been formed, and in many instances that small amount has been lost due to soil erosion.

Unfortunately, there is no practical way to qualitatively describe topsoil, so for legal purposes the term is meaningless. The following is taken from a recent contract specification and is about the best that can be done to describe "topsoil":

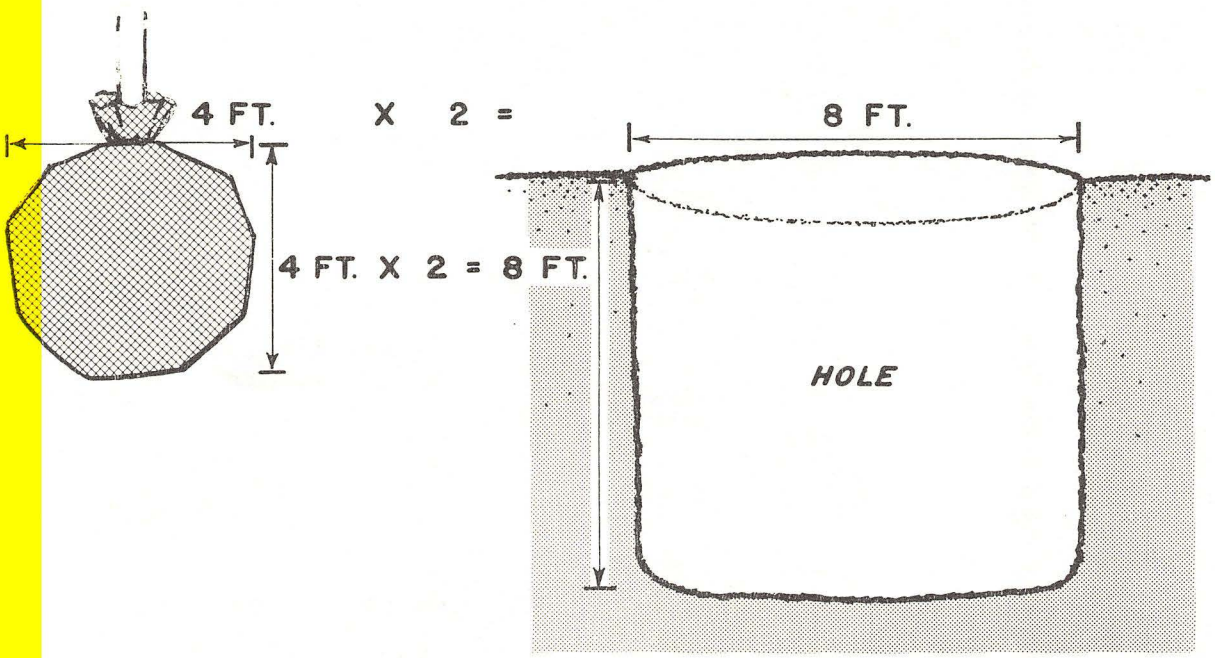
> "The topsoil shall be a fertile, friable soil. It shall not be excessively acid or alkaline, nor contain toxic substances which might be harmful to plant growth. It shall be without admixture of subsoil and shall be cleaned and reasonably free from lumps, stones, roots, debris or other objects which might be a hinderance to planting operations. All of the material shall pass a 1-inch screen and, when in a dry loose state, not more than 10 percent shall be retained on a No. 40 screen."

Digging Holes for Planting Trees and Shrubs

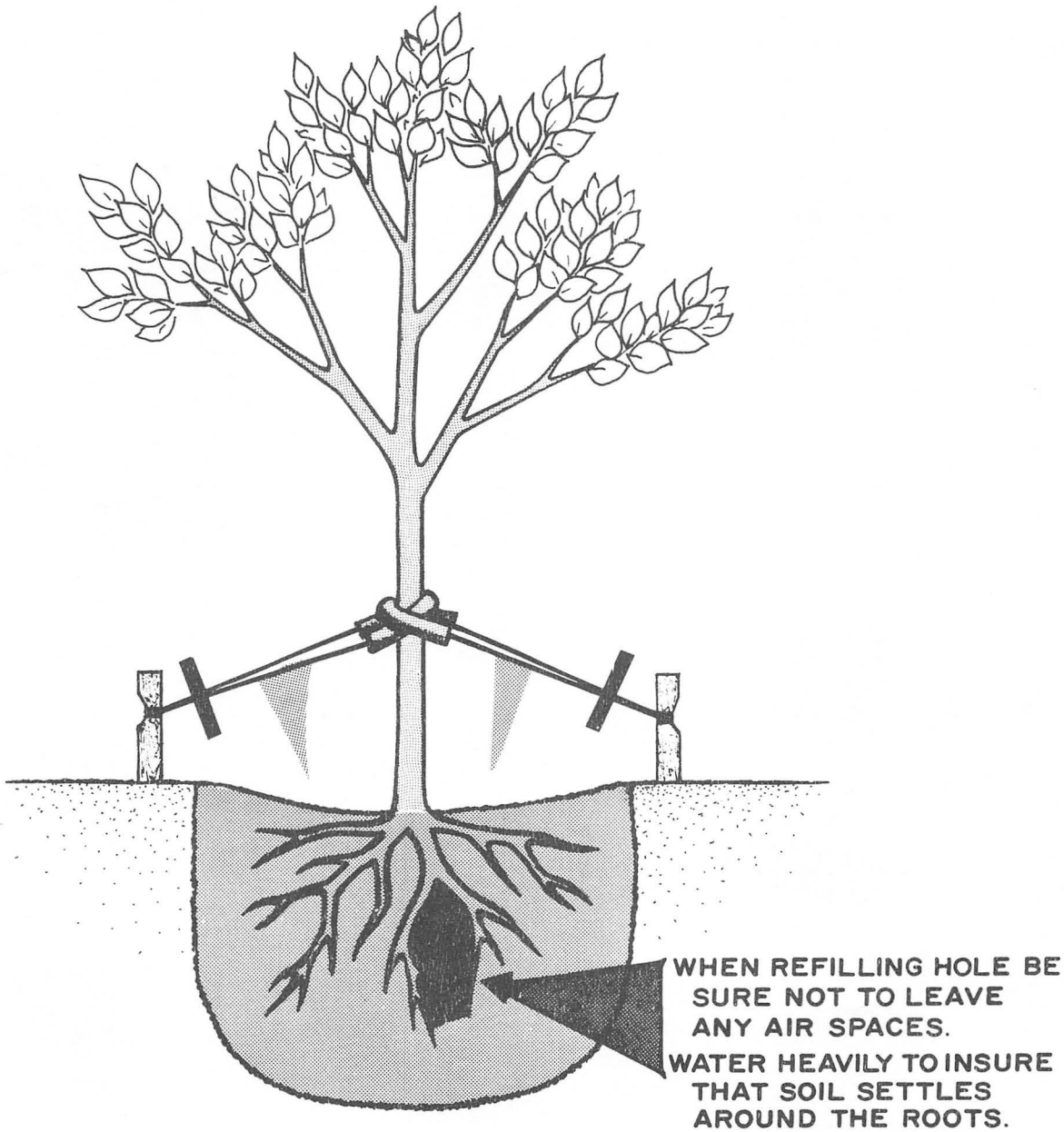
Holes for planting trees and shrubs should generally be dug at least twice the size of the container of the plant to be planted. For example: If potted stock is used, measure the diameter of the pot and the depth and multiply each number by two.



The same method should be used for balled (burlapped) stock.



This is a minimum. The loosening of the soil in digging the hole encourages root growth. In hard packed coral soil or dense clay, it is advisable to dig even larger holes.

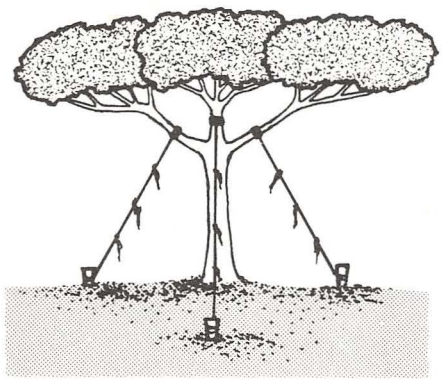


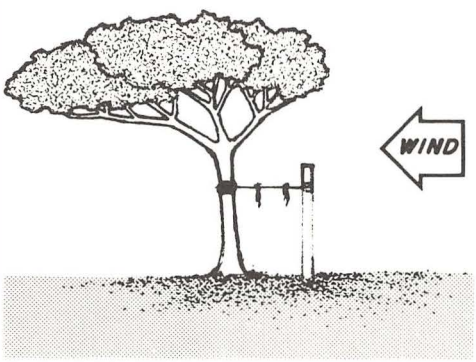
IN AREAS OF PACKED CORAL FILL OR DENSE CLAY SOIL, HOLES FOR PLANTING SHOULD BE AS LARGE AS IS PRACTICAL TO PREVENT THE PLANT FROM BECOMING ROOT BOUND.

Staking Trees and Shrubs

There are several reasons for staking (and guying) trees and shrubs:

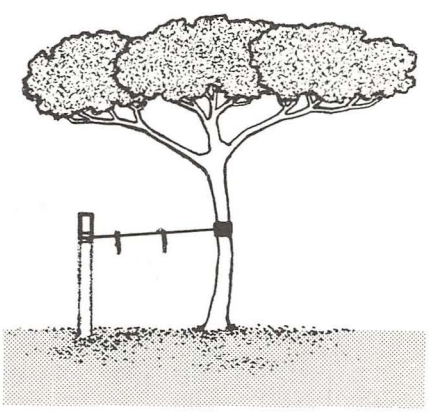
1. To prevent newly planted trees and shrubs from moving which can cause damage to new root growth; or toppling, which destroys the new root growth and, in the case of large trees, is potentially hazardous. This is best done with at least three stakes and guys.



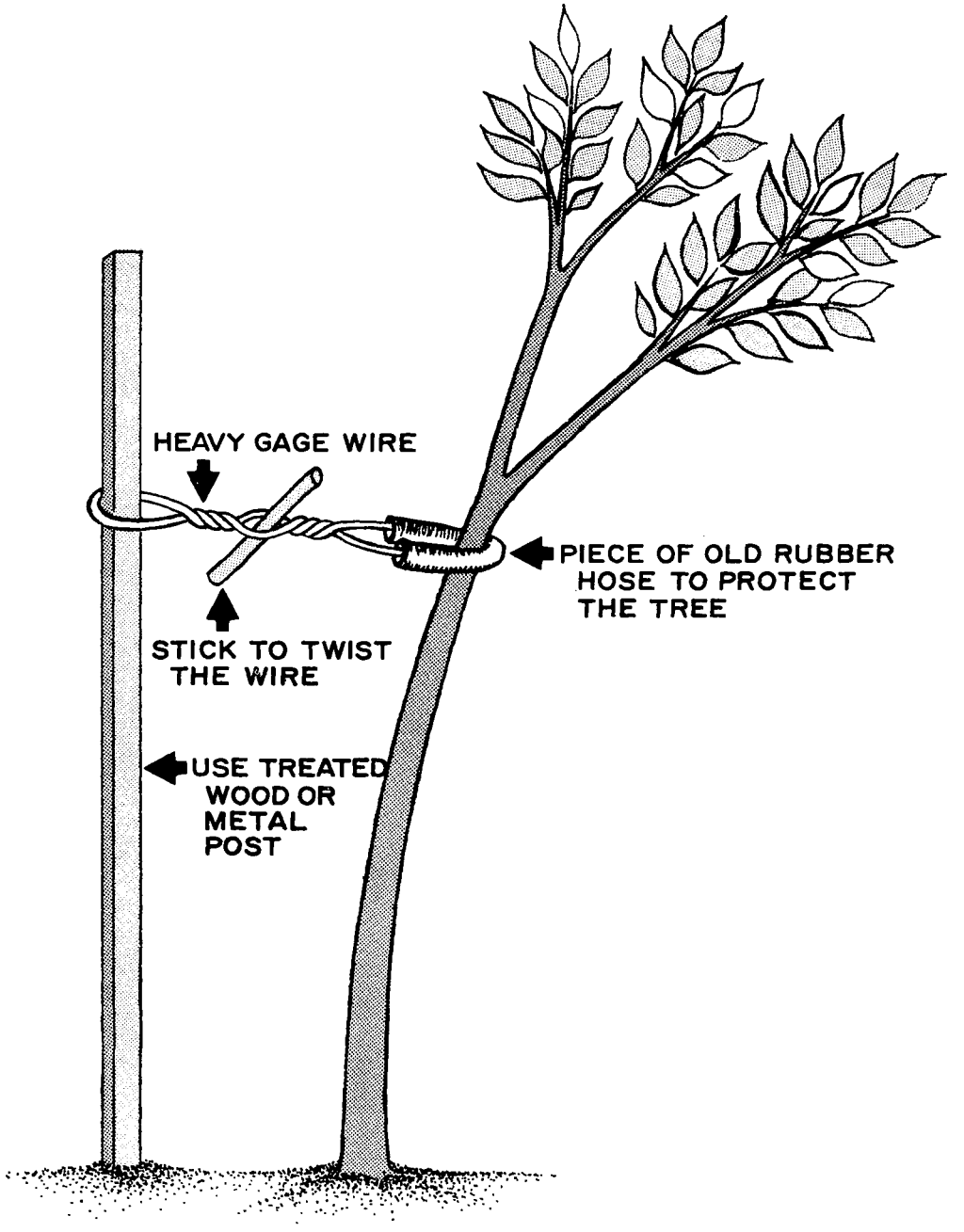


2. To minimize deformities caused by exposure to prevailing winds.

3. To correct slight deformities in the shape of a young tree or shrub by applying tension at the proper points. (Wait until the plant is well rooted in its new location.)



In all cases, guy wires should be flagged as a safety measure, and the trees or shrubs should be protected from direct contact with the guy wires by a piece of garden hose or surgical tubing.



TO STRAIGHTEN A YOUNG TREE

MAINTENANCE

Trimming Trees and Shrubs

In Hawaii and warmer parts of the Pacific, most trees and shrubs may be trimmed as necessary at any time of the year without adverse effects. The trimming of flowering or fruiting trees or shrubs may delay, reduce, or eliminate the production of fruit and flowers during the following season, but causes no damage to the plant.

Trees should be trimmed to leave a clear height of 14 feet over streets, 7 feet over sidewalks and footpaths, and as necessary to clear powerlines and other types of obstructions.

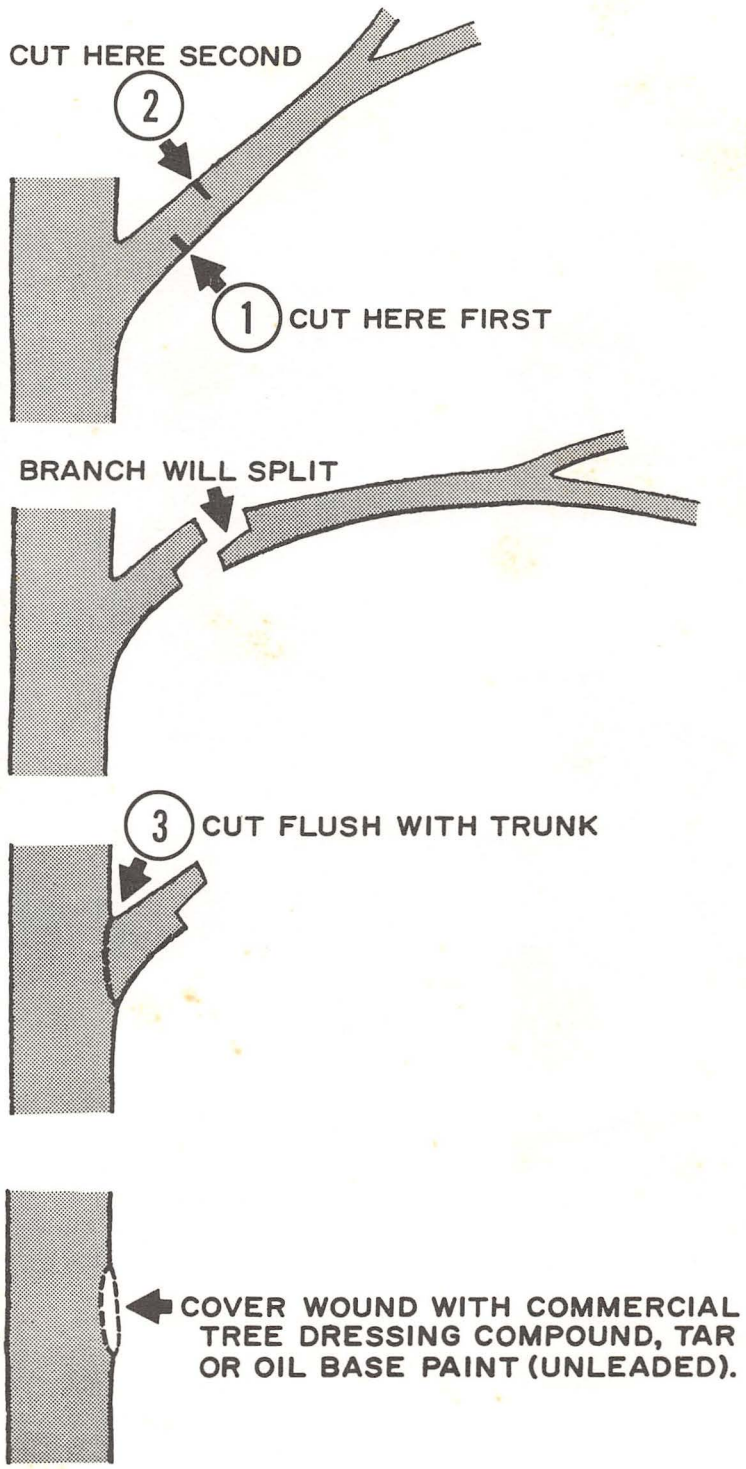
Hedges adjacent to roadways should generally be trimmed and maintained at a height of 36 inches or less. There should be no hedges within 30 feet of a major intersection.

In trimming trees or shrubs, any cuts greater than 3/4 inch in diameter should be covered with commercial tree dressing compound, tar or unleaded oil-base paint to protect against rotting and the entry of insects or disease.

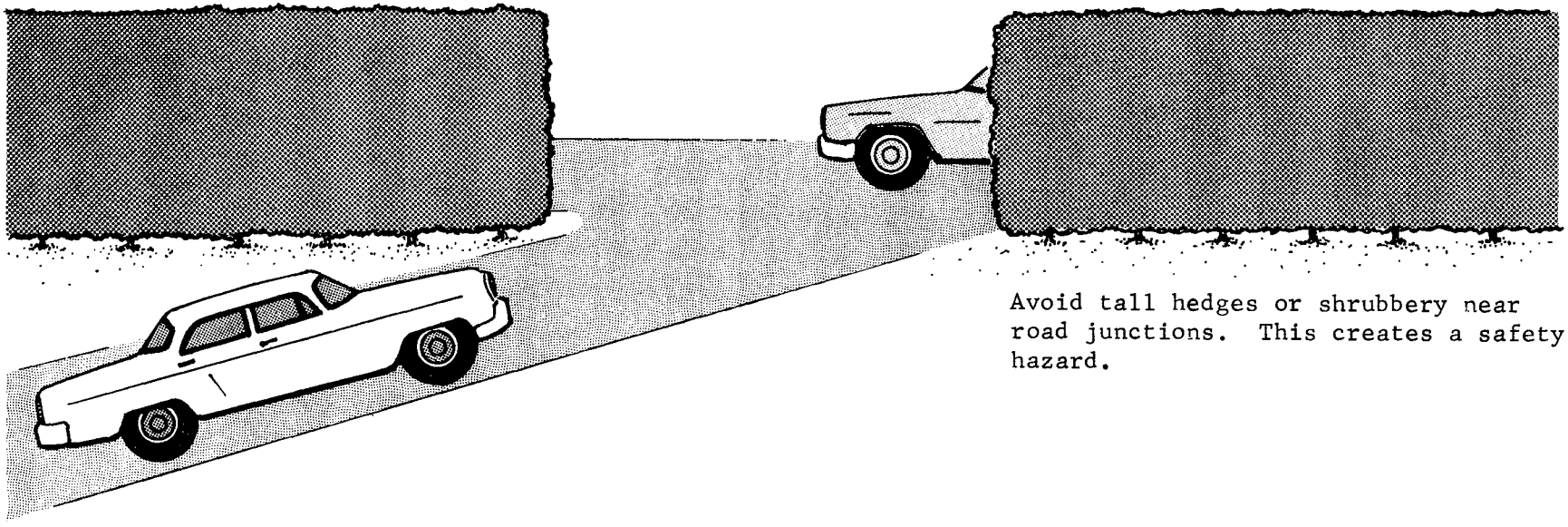
Caution: the trimming of conifers (such as pines, redwoods, cedars, cypress, junipers, and similar types of plants) is a job for an expert. Injured limbs can be removed, but attempts to reshape conifers by trimming should be done only under expert guidance.

The shrub "croton" (Codiaeum variegatum) and some other species grow very slowly and should not be drastically pruned. In general, branches should seldom be cut more than half their total length.

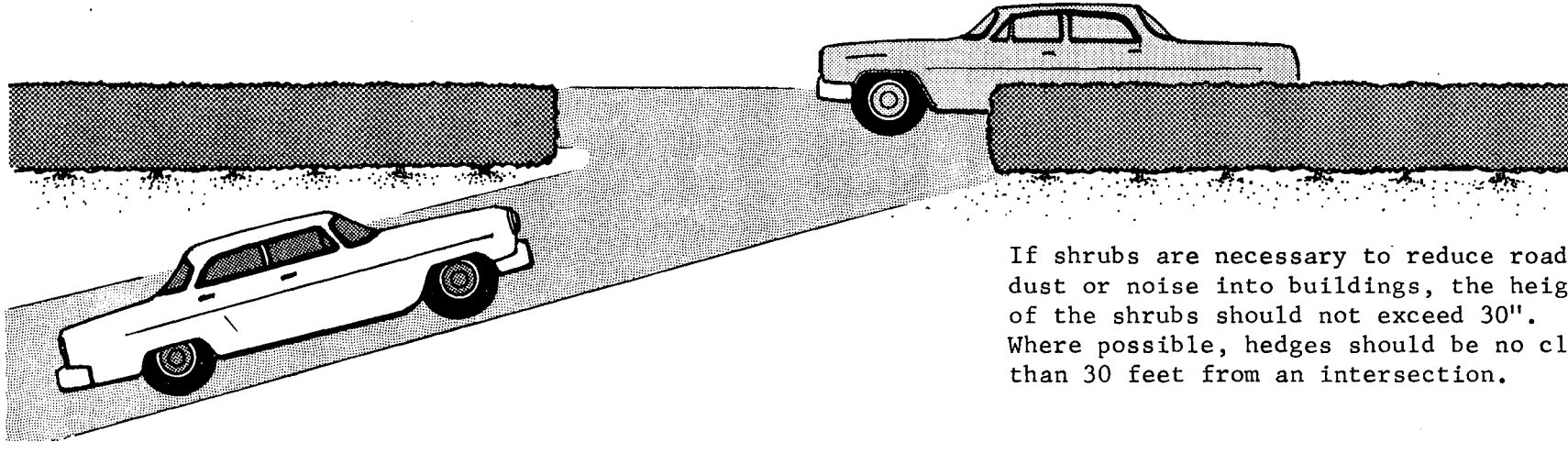
TO REMOVE A BRANCH



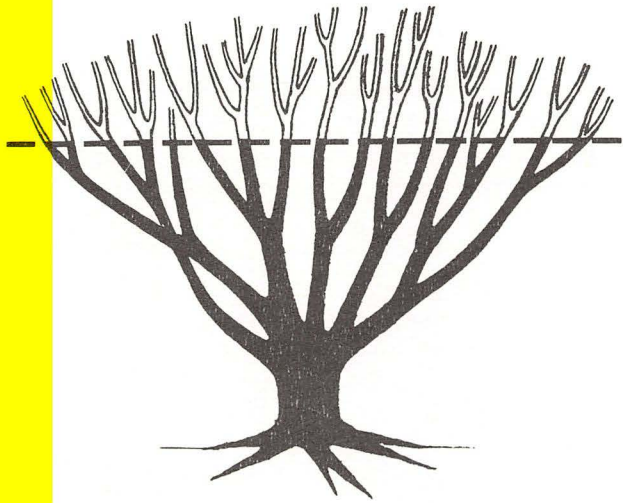
GIVE IT UP! This monkeypod tree has been repeatedly trimmed for at least fifteen years, due to its conflict with the telephone and powerlines. It would have been far better (cheaper and more attractive) to cut it down completely and plant another tree where it could grow to its natural size and shape without interfering with utility lines.

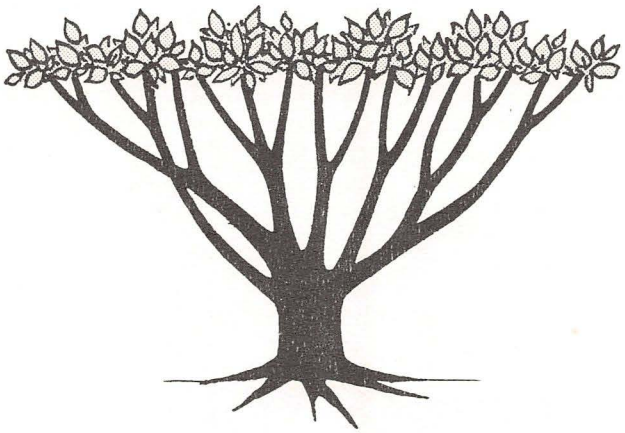


Avoid tall hedges or shrubbery near road junctions. This creates a safety hazard.

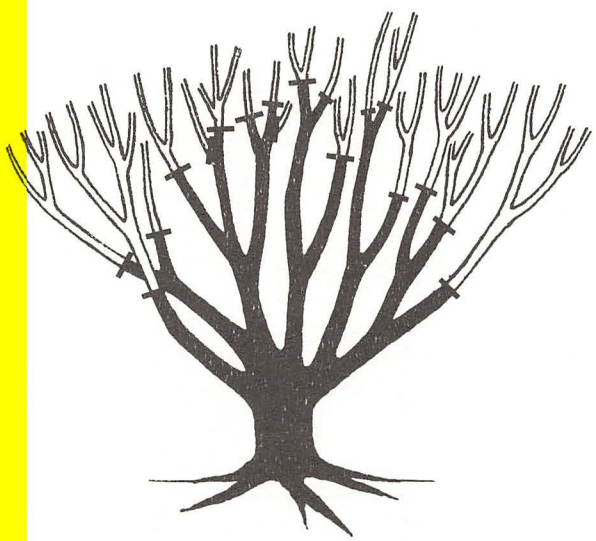


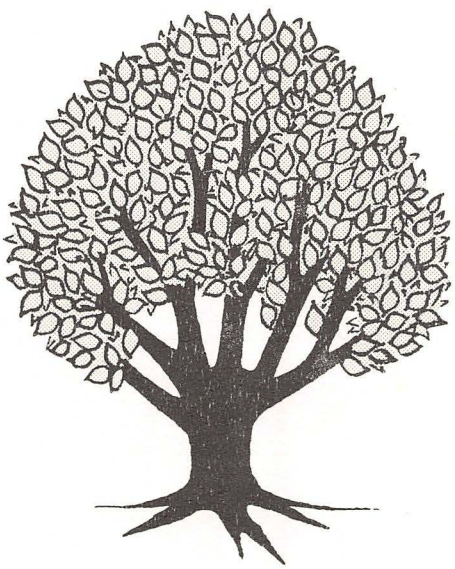
If shrubs are necessary to reduce road dust or noise into buildings, the height of the shrubs should not exceed 30". Where possible, hedges should be no closer than 30 feet from an intersection.





If shrubs are continually trimmed only on top, the result will be a shrub or hedge with exposed branches, and very few leaves or flowers.





If some of the branches are trimmed to different lengths at each pruning, the shrub will appear fuller, with more foliage and flowers.

Mowing

Types of Mowers: Householders have the choice of two types of mowers to buy: the rotary-type power mower which is most popular at present due to low cost and ability to cut tall grass even over rough terrain, or the reel type push or power mower which does the neatest jobs on level, well-kept lawns.

When to Mow Lawns: Most lawns should be mowed when the grass is 2' to 3 inches tall. For planning purposes this can be estimated to be every 2 to 3 weeks. This is, however, so variable, depending on the amount of fertilizer and water the yard receives, that exact scheduling is not practical. Human judgment is required.

Most householders do yard work on weekends during the cool of the day (early in the morning or late in the afternoon). If a power mower is used check with neighbors. Most persons find noise from power equipment less objectionable in the late afternoon. When mowing a lawn with a power mower or using other noisy equipment, try to do it all at once and get it over with.

Although Public Works or other professional grounds keepers do not have much choice on when they mow, in some instances they may be able to schedule the areas to be mowed so that noise, especially around housing, is kept down in the early morning hours.

Grass Catchers: The householder, and where feasible the grounds keeper, should use a grass catcher on the mower. Cut grass, left on the lawn, does not decompose readily. It decreases the attractiveness of the lawn, interferes with the growing grass and tends to create favorable conditions for lawn diseases and insects. If there are weeds in the grass, the grass catcher will prevent weed seeds from being spread all over the lawn.

Fertilizing

Understanding Commercial Fertilizer: There are three major plant food elements: nitrogen, phosphorus, and potassium. A fertilizer which contains all three of these major plant food elements is called a "Complete" fertilizer.

Fertilizers are sold in many formulations which contain different percentages of these three elements. The fertilizer bag or container is generally labelled with a three number analysis.

The first number always represents the percent of nitrogen - N

The second number always represents the percentage of phosphoric acid - P_2O_5

The third number always represents the percent of potash - K_2O

Thus, a bag of 20-20-20 fertilizer contains 20% nitrogen, 20% phosphoric acid, and 20% potash. The remaining 40% of material in the bag is inactive "filler".)*

Likewise a bag of 18-8-4 fertilizer contains 18% nitrogen, 8% phosphoric acid, and 4% potash. (The remaining 70% of material in the bag is inactive "filler".)*

Determining the Type and Amount of Fertilizer to Use: The type and amount of fertilizer to be used depends on:

(1) the type of soil at that location

(2) the type of plant(s) to be grown

(3) the type of fertilizer available

The exact type of soil at any location can only be determined by a laboratory soil analysis. Most agricultural colleges are equipped to make such soil analysis.** The effort and expense involved in conducting such analysis is generally not warranted unless a large land area is under study. Small areas such as individual houselots, parks, or administrative areas are frequently "filled" land containing many different types of soil. If the property is to be, or has been landscaped it will contain many different types of plants, each with different fertilizer requirements.

Since it is impractical and unrealistic to expect that carefully measured amounts of different types of fertilizer will be applied to each different type of plant on each type of soil, a more general approach is entirely satisfactory.

Pacific island soils can generally be grouped into two broad categories: clay soils and coral soils.

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* In buying fertilizer, the bags containing the highest percentages are usually the best bargain. For example, a 100 pound bag of 20-20-20 contains twice as much actual fertilizer as a 100 pound bag of 10-10-10 but usually does not cost twice as much.

The more concentrated formulations are also desirable when shipping fertilizer to remote areas since there is less inactive "filler" material to be shipped.

** Quarantine restrictions which may vary with location, must be observed in shipping soil samples for testing.

Clay soils: This large category contains the clay soils and the silty clay soils, developed from basalt and other volcanic rocks. In wet areas, these soils are highly leached and usually strongly acid. These soils are low in all three major plant food elements (N-P-K), and are also low in calcium. Grasses will usually grow fairly well on clay soils if fertilized only with N-P-K. On clay soils, trees, shrubs, and garden vegetables usually require fertilizing with N-P-K and also with calcium.

Clay soils need calcium both as a plant food and also to neutralize acidity. Lacking a better source of calcium, fine coral sand may be applied at the rate of 2 to 4 tons per acre, or as determined by a soil test. Do not use salt-laden sand taken directly from beach areas.

Coral Soils: The other group of soils includes those developed from coral, coral sand, or limestone. These soils are usually sandy and somewhat alkaline. They are low in all three major food elements; nitrogen (N), phosphorus (P), and potassium (K) but have a surplus of calcium. Grasses usually grow well if fertilized only with N-P-K. Trees, shrubs, and garden vegetables require N-P-K and may also require the addition of micro-plant food elements such as iron, zinc, copper, and perhaps others. A deficiency in these micro-elements generally causes leaves to turn pale green or yellow. This is called a "chlorotic" condition.

Fertilizer requirements are expressed in one of two ways:

Either: (a) the number of pounds of "actual" fertilizer per acre per year (such as 108 pounds of nitrogen, 48 pounds of phosphoric acid, and 24 pounds of potash).

or: (b) the number of pounds of a certain formulation per acre per year (such as 600 pounds of 18-8-4).

The use of (b) above is simpler since it tells the user exactly what formulation to buy (18-8-4).

If, however, that formulation is not available, it is necessary to convert to pounds of "actual" fertilizer. For example: if the recommended fertilizer formulation is 18-8-4 applied at a rate of 600 pounds per acre per year, then:

Actual pounds N = 18% of 600 pounds or 108 pounds N per acre per year.

Actual pounds P_2O_5 = 8% of 600 pounds or 48 pounds P_2O_5 per acre per year.

Actual pounds K_2O = 4% of 600 pounds or 24 pounds K_2O per acre per year.

This indicates that 108 pounds of actual N, 48 pounds of actual P_2O_5, and 24 pounds of actual K_2O are recommended per acre per year.

Other formulations and amounts can be applied to achieve the same quantity of actual fertilizer.

If fertilizer recommendations based on soil analysis are not available, the following may be used on all types of soils, as a minimum rate. Exact, or even close adherence to these amounts is not critical. Higher rates, up to double these amounts will do no harm and will merely result in lusher greener growth.

Fertilizer for Ground Cover and Grasses: Use 120 pounds N, 64 pounds P_2O_5, and 32 pounds K_2O per acre per year. (Actual fertilizer)

This can be done by applying 800 pounds of the formulation 15-8-4 per acre per year. The best way to do this is to apply 200 pounds per acre 4 times a year.

Fertilizer for Trees, Shrubs, and Garden Vegetables: Use 120 pounds N, 120 pounds P_2O_5, and 120 pounds K_2O per acre per year. (Actual fertilizer)

This can be done by applying 800 pounds of the formulation 15-15-15 per acre per year. The best way to do this is to apply 200 pounds per acre 4 times a year.

To fertilize individual trees and shrubs in your yard, apply ½ pound (½ beer can) of 15-15-15 around the base of each plant, 4 times a year. This can be done either by merely sprinkling it on the ground or better, by punching several holes in the ground around the base of the plant and pouring the fertilizer into the holes.

For very young, or recently transplanted trees and shrubs, wait a few weeks before fertilizing, otherwise the shock may kill them. Grass may be fertilized immediately upon planting.

If the area fertilized is coral or sandy soil and, despite fertilization, the leaves of the trees and shrubs are light green or yellowish and appear sickly, the plants are probably lacking in iron, zinc, copper, and perhaps other minor plant foods. To eliminate this, make sure that the fertilizer purchased also contains these elements. (The fertilizer bag will normally say "contains Micronutrients" or "contains Esminel Salts" or may actually specify the percentages of each.)

If the recommended fertilizer formulations are not available, do not hesitate to use the closest formulation available. PACIFIC ISLAND SOILS ARE GENERALLY SO POOR THEY ARE GRATEFUL FOR ANY HELP THEY CAN GET.

Watering

Areas that have been fertilized should be well watered immediately thereafter and very lightly each day for a few days following fertilization. In areas where it is impossible to water, fertilizing should be timed to take advantage of the rainy season. No fertilizer can be effective without adequate soil moisture, but don't overwater. JUST AS PLANTS CAN STARVE FROM LACK OF FERTILIZER, THEY CAN DROWN FROM TOO MUCH WATER.

The amount of water required for a lawn depends of course on the temperature and rainfall in the area, as well as the soil and the type of grass being grown, and must be adjusted accordingly.

As a general rule, most areas of 40" annual rainfall or more, with bermuda grass or St. Augustine grass lawns, do not require watering except after fertilizer is applied or during the dry summer months.

In areas of lower annual rainfall, say 18-30 inches per year, such as MCAS Kaneohe Bay or NAS Barber's Point, it may be necessary to water lawns monthly or even weekly, but an area should never be watered for more than ½ hour at any time, regardless of the soil type, or species of grass being grown.

LANDSCAPE PLANTS

TREES & SHRUBS

Common Name: Small Cycad Palm
Scientific Name: Cycas revoluta
Other Names: Small Sago Palm
Mature Height: 8 feet
Crown Spread (30 years): 10 feet
Flowers: brownish, conspicuous
Wind Resistance: poor
Grows at Elevation: 0-2,000 feet
Rainfall: 40"+ (or watered)
Soil: grows in slightly salty, sandy, poor or deep soil.
Remarks: Introduced to Hawaii from the Orient. Low maintenance. Recommended for use in administrative areas. Generally too fragile for use in housing areas or parks. DO NOT PLANT CLOSER THAN 5 FEET FROM BUILDINGS, SIDEWALKS, ROADS, SEWER, OR WATERLINES.

Common Name: Large Cycad Palm
Scientific Name: Cycas circinalis
Other Names: Sago Palm, Federico, Fadang
Mature Height: 15 feet
Crown Spread (30 years): 18 feet
Flowers: brownish, conspicuous
Wind Resistance: poor
Grows at Elevation: 0-1,500 feet
Rainfall: 40"+ (or watered)
Soil: grows in salty, sandy, poor or deep soil.
Remarks: Introduced to Hawaii. Native to India and the Philippines. Low maintenance. THORNS on fronds. Recommended for use in administrative areas. Young trees are generally too fragile for use in housing or park areas. PLANT IN AREA PROTECTED FROM WIND. DO NOT PLANT CLOSER THAN 9 FEET FROM BUILDINGS, SIDEWALKS, ROADS, SEWER OR WATERLINES.

Common Name: Norfolk Pine
Scientific Name: Araucaria heterophylla
Other Names: Norfolk Island Pine, Araucaria excelsa (*See Remarks)
Mature Height: 150 feet
Crown Spread (30 years): 24 feet
Flowers: inconspicuous
Wind Resistance: excellent
Grows at Elevation: 0-3,000 feet
Rainfall: 30"+ (or watered)
Soil: grows in salty, sandy, poor, or deep soil
Remarks: Not a true pine. Introduced to Hawaii. Native to Norfolk Island. This species is so similar to the Cook Pine (Araucaria columnaris) that for landscaping, they are interchangeable. Low maintenance. Fallen leaves may be a small problem. Recommended for general use in housing, park, administrative, commercial, or industrial areas. Many young trees are grown using seed from genetically poor trees and are crooked or deformed. Use only straight, well-formed trees. The beauty of this tree is its symmetry; crooked trees are hideous. DO NOT PLANT CLOSER THAN 12 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

Common Name: Italian Cypress
Scientific Name: Cupressus sempervirens var. stricta
Mature Height: 40 feet
Crown Spread (30 years): 10 feet
Flowers: inconspicuous
Wind Resistance: poor to fair
Grows at Elevation: 100-3,000 feet
Rainfall: 10"+ (or watered). Best in cool, high and dry areas.
Soil: grows in sandy, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to the mountains of the eastern Mediterranean, and especially to Greece and Italy. Low maintenance. Recommended for use in administrative and commercial areas, especially to soften tall buildings. Use only straight, well formed trees; crooked trees are hideous. DO NOT PLANT CLOSER THAN 5 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

Small Cycad Palm
Cycas revoluta

Large Cycad Palm
Cycas circinalis

Norfolk Pine
Araucaria heterophylla

All Grid Squares in Close-up Photos are 1" square

Italian Cypress
Cupressus sempervirens var. stricta

Common Name: Callitris
Scientific Name: Callitris spp.
Other Names: White Cypress Pine, Murray Pine
Mature Height: up to 100 feet, depending on the location. Slow growing.
Crown Spread (30 years): 12 feet
Flowers: inconspicuous
Wind Resistance: very good
Grows at Elevation: 100-2,000 feet
Rainfall: 10" - 50" (or watered)
Soil: prefers dry soil. Grows well in sandy, loam soil. Deep roots.
Remarks: Introduced to Hawaii. Native to Australia where it is widely distributed in various soils and climatic conditions. There are about 16 species within the Genus Callitris which are found in Australia, New Caledonia, and Africa. Low maintenance. Recommended for administrative, commercial, golf courses, and formal park areas. Too fragile for "Tot-lots". Also recommended for housing in areas not subject to damage by children. DO NOT PLANT CLOSER THAN 6 FEET FROM BUILDINGS, BURIED POWER, SEWER, OR WATERLINES, SIDEWALKS OR ROADS.

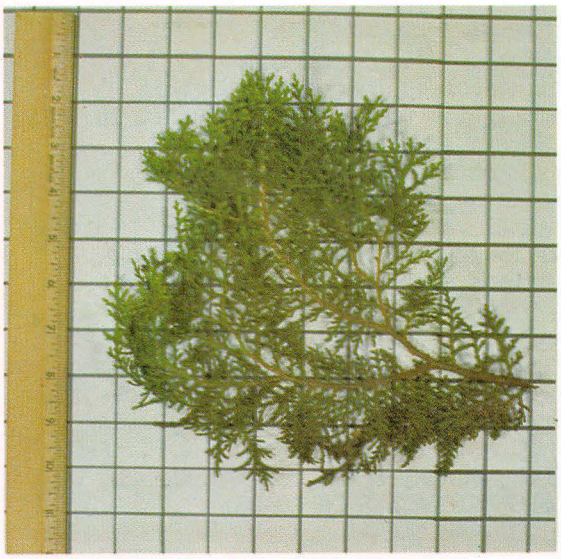
Common Name: Oriental Arborvitae
Scientific Name: Thuja orientalis
Mature Height: 30 feet
Crown Spread (30 years): 12 feet
Flowers: inconspicuous
Wind Resistance: good
Grows at Elevation: 100-2,000 feet
Rainfall: 30" - 80" (or watered)
Soil: grows in sandy, poor, or deep soil. Soil must be well drained.
Remarks: Introduced to Hawaii. Native to northern China and Korea. Many variations differing slightly in size, shape and color. Low maintenance Recommended for administrative, commercial golf course, and formal park areas. Too fragil for "Tot-lots". Also recommended for housing in locations not subject to damage by children. DO NOT PLANT CLOSER THAN 6 FEET FROM BUILDINGS, BURIED POWER, SEWER, OR WATERLINES, SIDEWALKS OR ROADS.

Common Name: Hala (Hawaii)
Scientific Name: Pandanus odoratissimus
Other Names: Pandanus, Screw Pine, Paingot, Aggag, Akaon, Kafu (Guam)
Mature Height: 20 feet or more.
Crown Spread (30 years): 40 feet
Flowers: white, male flowers very fragrant, female flowers in woody heads
Wind Resistance: excellent
Grows at Elevation: 0-1,500 feet
Rainfall: 10" + (or watered)
Soil: grows in salty, sandy, shallow, poor, wet, or deep soil.
Remarks: Native to Hawaii, Guam and other Pacific islands. Many varieties. Medium maintenance. Drops large leaves daily. Use only in open areas exposed to breezes. Do not concentrate. On Guam it is a host for the mosquito, Aedes pandani, and is not recommended for landscaping. DO NOT PLANT BETWEEN HOUSES OR CLOSER THAN 20 FEET FROM BUILDINGS OR 10 FEET FROM SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

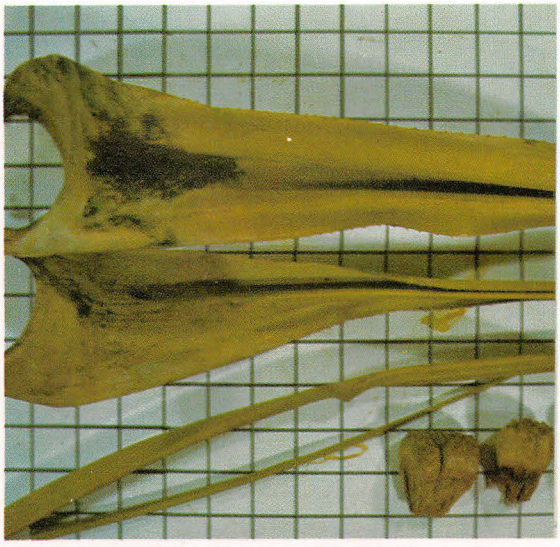
Callitris
Callitris spp.

Oriental Arborvitae
Thuja orientalis

All Grid Squares in Close-up Photos are 1" square



Hala
Pandanus odoratissimus



Common Name: Bamboo Palm
Scientific Name: Rhapis excelsa
Other Names: Lady Palm, R. flabelliformis
Mature Height: 15 feet
Crown Spread (30 years): clump, 20 feet
Flowers: inconspicuous, yellow
Wind Resistance: poor to fair
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: grows in rich, deep, sandy, or poor soil.
Remarks: Introduced to Hawaii. Native to China and Japan. Very low maintenance. Easy to control by trimming. Needs partial shade and wind protection. Recommended for administrative, industrial, and housing areas. Good in small areas next to buildings. NO PLANTING SPACE RESTRICTIONS.

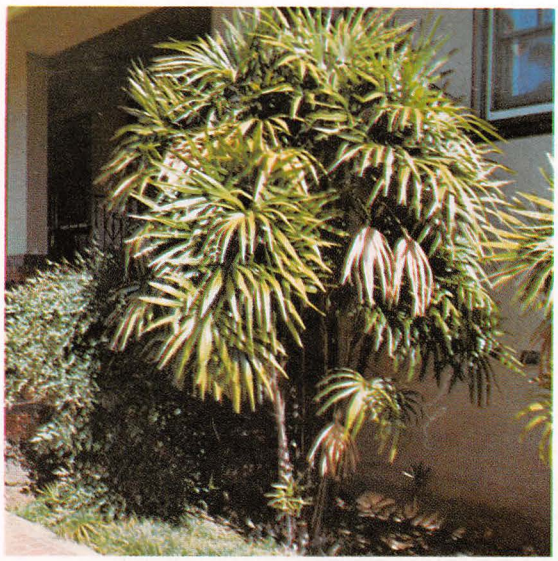
Common Name: Chinese Fan Palm
Scientific Name: Livistona chinensis
Other Names: Fountain Palm
Mature Height: up to 50 feet
Crown Spread (30 years): 10 feet
Flowers: inconspicuous
Wind Resistance: good
Grows at Elevation: 0-3,000 feet
Rainfall: 20" (or watered)
Soil: Grows in rich, deep, sandy, or poor soil.
Remarks: Introduced to Hawaii. Native to China and Malaysia. Very low maintenance. Recommended for general use. Good near entrances to buildings, for medial strips and parking lots. DO NOT PLANT CLOSER THAN 6 FT. FROM BUILDINGS, POWER, SEWER OR WATERLINES OR 3 FT. FROM SIDEWALKS OR ROADS.

Common Name: Loulu Palm (Hawaii)
Scientific Name: Pritchardia spp.
Mature Height: P. pacifica to 30 feet, P. hillebrandii to 21 ft., P. remota to 15 ft., P. gaudichaudii to 6 ft., Palm shown is P. thurstonii to 14 ft.
Crown Spread (30 years): 14 feet
Flowers: inconspicuous, cream
Wind Resistance: good
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: grows in rich, deep, sandy, or poor soil.
Remarks: 35 species; 31 are native to Hawaii. Low maintenance. All are recommended as substitutes for coconut palms. DO NOT PLANT CLOSER THAN 7 FT. FROM BUILDINGS, POWER, SEWER, OR WATERLINES, 3 FT. FROM SIDEWALKS OR ROADS.

Common Name: Blue Latan Palm
Scientific Name: Latania loddigesii
Mature Height: up to 50 ft. usually 20.
Crown Spread (30 years): 12 feet
Flowers: on spikes up to 5 ft. long
Wind Resistance: good
Grows at Elevation: 0-3,000 ft.
Rainfall: 20" + (or watered)
Soil: grows in rich, deep, sandy, or poor soil.
Remarks: Introduced to Hawaii. Native to Mauritius. Very low maintenance. Recommended for general use. Good near entrances to buildings, for medial strips and parking lots. DO NOT PLANT CLOSER THAN 6 FT. FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 4 FT. FROM SIDEWALKS OR ROADS.

Common Name: Bottle Palm
Scientific Name: Mascarena lagenicaulis
Other Names: Plum-nut Palm
Mature Height: up to 14 feet
Crown Spread (30 years): 8 feet
Flowers: inconspicuous
Wind Resistance: fair to good
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: grows in rich, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to the Mascarene Islands. Very low maintenance. Recommended for general use. Good in small areas next to buildings. DO NOT PLANT CLOSER THAN 4 FT. FROM BUILDINGS, POWER, SEWER, OR WATERLINES OR 3 FT. FROM SIDEWALKS OR ROADS.

Bamboo Palm
Rhapis excelsa



Chinese Fan Palm
Livistona chinensis

Loulu Palm
Pritchardia thurstonii

Blue Latan Palm
Latania loddigesii

Bottle Palm
Mascarena lagenicaulis

Common Name: Golden-Fruited Palm
Scientific Name: Chrysalidocarpus lutescens
Other Names: Areca Palm, Yellow Bamboo Palm, Butterfly Palm
Mature Height: 20 feet
Crown Spread (30 years): clump, 20 feet
Flowers: inconspicuous, white
Wind Resistance: good
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, poor, or deep soil
Remarks: Introduced to Hawaii. Native to Madagascar. Very low maintenance. Recommended for general use. Good in small areas near buildings, in parking lots, and to screen unattractive items such as dumpsters and garbage cans. DO NOT PLANT CLOSER THAN 8 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, 4 FEET FROM SIDEWALKS OR ROADS.

Common Name: Macarthur Palm
Scientific Name: Ptychosperma macarthurii
Other Names: Drymophloeus or Kentia or Actinophloeus macarthurii
Mature Height: 30 feet
Crown Spread (30 years): clump, 20 feet
Flowers: inconspicuous, cream colored
Wind Resistance: good
Grows at Elevation: 0-2,000 feet
Rainfall: 30" + (or watered)
Soil: prefers rich deep soil, will grow in sandy or poor
Remarks: Introduced to Hawaii. Native to New Guinea, Moluccas and Australia. Very low maintenance. Recommended for general use. Good in small areas near buildings, in parking lots, and to screen dumpsters and garbage cans. DO NOT PLANT CLOSER THAN 8 FEET FROM GUILDINGS, POWER, SEWER, OR WATERLINES, 4 FEET FROM SIDEWALKS OR ROADS.

Common Name: Manila Palm
Scientific Name: Veitchia merrilli
Other Names: Merrill Palm, Pugua China
Mature Height: 20 feet
Crown Spread (30 years): 10 feet
Flowers: inconspicuous, ash colored
Wind Resistance: fair to good
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: prefers rich, deep soil; will grow in sandy or poor
Remarks: Introduced to Hawaii. Native to the Philippines. Very low maintenance. Recommended for general use. Good near main entrances, for medial strips and parking lots. DO NOT PLANT CLOSER THAN 5 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, 2 FEET FROM SIDEWALKS OR ROADS.

Common Name: Royal Palm
Scientific Name: Roystonea elata
Other Names: Oreodoxa regia
Mature Height: Up to 70 feet
Crown Spread (30 years): 20 feet
Flowers: inconspicuous
Wind Resistance: fair to good
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: prefers rich, deep soil; will grow in sandy or poor
Remarks: Introduced to Hawaii. Native to Cuba. Very Low Maintenance. Recommended near tall buildings in admin areas and to line formal driveways. (Plant extras nearby to use as replacements). Good for golf courses and formal park areas. Generally too tall to use near single story buildings. DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, 5 FEET FROM SIDEWALKS OR ROADS.

Common Name: Coconut Palm
Scientific Name: Cocos nucifera
Other Name: Niu (Hawaii) Niyog (Guam)
Mature Height: up to 100 feet, usually 60
Crown Spread (30 years): 30 feet
Flowers: inconspicuous, cream colored
Wind Resistance: excellent
Grows at Elevation: 0-1,500 feet
Rainfall: 20" + (or watered)
Soil: prefers rich, deep soil; will grow in sandy or poor
Remarks: A prehistoric introduction to Hawaii, and to other islands of the Pacific, to Ceylon and the Philippines. High maintenance. Not recommended for general use. Excessive debris. Produces 60-100 mature nuts and 8-12 fronds a year. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS OR POWER LINES, OR 5 FEET FROM SEWER, WATERLINES, SIDEWALKS, OR ROADS.

Common Name: Dwarf Date Palm
Scientific Name: Phoenix roebelinii
Other Names: P. loureiri, P. humilis
Mature Height: 8 feet
Crown Spread (30 years): 8 feet
Flowers: inconspicuous, cream colored
Wind Resistance: fair
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: prefers rich, well drained soil; will grow in sandy or poor, not wet
Remarks: Introduced to Hawaii. Native to Indo-China. Very low maintenance. Recommended for use in admin areas. Requires partial shade. Has THORNS. Generally too fragil for use in housing areas or parks. DO NOT PLANT CLOSER THAN 4 FEET FROM BUILDINGS, SIDEWALKS, ROADS, SEWER OR WATERLINES.

Golden Fruited Palm
Chrysalidocarpus lutescens

Royal Palm
Roystonea elata

Macarthur Palm
Ptychosperma macarthurii

Coconut Palm
Cocos nucifera

Manila Palm
Veitchia merrilli

Dwarf Date Palm
Phoenix roebelinii

Common Name: Canary Islands Date Palm
Scientific Name: Phoenix canariensis
Mature Height: 60 feet, slow growing
Crown Spread (30 years): 30 feet
Flowers: inconspicuous
Wind Resistance: good
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: prefers rich, moist soil; will grow in sandy or poor soil.
Remarks: Introduced to Hawaii. Native to the Canary Islands. High maintenance especially in cleaning up large quantities of fallen dates. Not recommended for general use. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS OR POWERLINES, OR 5 FEET FROM SEWER, WATERLINES, SIDEWALKS OR ROADS.

Common Name: Dracaena or "Moneytree"
Scientific Name: Dracaena spp.
Mature Height: 30 feet
Crown Spread (30 years): 5 feet
Flowers: greenish, inconspicuous
Wind Resistance: fair
Grows at Elevation: 0-3,000 feet
Rainfall: 30" (or watered)
Soil: Prefers rich, moist soil; will grow in sandy or poor soil.
Remarks: Some species are apparently native to Hawaii, others are introduced. Low maintenance. Recommended for general use and to screen dumpsters, garbage cans, chain-link fences, electrical units, and to soften walls of tall buildings. Good in narrow planting strips. Propagated by pushing cut sections of the stem into the ground. NO PLANTING SPACE RESTRICTIONS.

Common Name: Travellers Tree or "Palm"
Scientific Name: Ravenala madagascariensis
Mature Height: 50 feet
Crown Spread (30 years): 24 x 8 feet
Flowers: green or white
Wind Resistance: fair, leaves shred
Rainfall: 20" + (or watered)
Soil: grows in sandy, shallow, poor, wet or deep soil. Not in salty soil.
Remarks: Introduced to Hawaii and other tropical areas. Native to Madagascar. Low maintenance. Recommended for use in administrative and commercial areas to soften walls of tall buildings. The crown spread is eliptical. Plant the tree parallel to adjacent structures. Rain trapped in leaves may provide mosquito habitat. Plant where air circulation is good. DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDINGS, SEWER, AND POWER LINES, 5 FEET FROM SIDEWALKS OR ROADS.

Common Name: Ti
Scientific Name: Cordyline terminalis
Mature Height: 12 feet
Crown Spread (30 years): 5 feet
Flowers: white or lilac, various times
Wind Resistance: fair
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: prefers rich, moist soil; will grow in sandy or poor soil.
Remarks: A prehistoric introduction to Hawaii. Native to Asia and Australia. Varieties with red, green or varigated leaves. Low maintenance. Propagated by pushing cut sections of the stem into the ground. Recommended for general use, good in small planting strips. Rain trapped in leaves may provide mosquito habitat. Plant where air circulation is good. NO PLANTING SPACE RESTRICTIONS.

Common Name: Spider Lily
Scientific Name: Crinum asiaticum
Mature Height: 6 feet
Crown Spread: 5 feet
Flowers: white
Wind Resistance: fair
Rainfall: 30" + (or watered)
Soil: grows in sandy, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to Tropical Asia. Low maintenance. Leaves trap much rainwater which provides habitat for mosquitos. NOT RECOMMENDED FOR LANDSCAPING EXCEPT IN AREAS EXPOSED TO A CONSTANT BREEZE.

Common Name: Banana
Scientific Name: Musa spp.
Other Name: Chotda (Guam)
Mature Height: to 25 feet, grows very rapidly.
Crown Spread: 20 feet
Flowers: cream; variable times
Wind Resistance: poor to fair
Rainfall: 40" + (or watered)
Soil: grows in sandy, shallow, poor, wet or deep soil. Not in salty soil.
Remarks: Probably a prehistoric introduction to Hawaii. Native to tropical areas of the old world. High maintenance. Juice STAINS CLOTHING. Many species and varieties. Each year, after fruiting, trees must be cut off at base leaving juicy stumps which attract many types of insects. Heavy debris. Too messy to maintain in improved areas. NOT RECOMMENDED FOR LANDSCAPING.

Canary Islands Date Palm
Phoenix canariensis

Ti
Cordyline terminalis

Dracaena or Moneytree
Dracaena spp.

Spider Lily
Crinum asiaticum

Traveller's Tree or Palm
Ravenala madagascariensis

Banana
Musa sp.

Common Name: Ironwood
Scientific Name: Casuarina spp.
Other Names: "Pine Trees" (common name in Hawaii) She-oak, Beefwood, Toa
Mature Height: 100 feet or more.
Crown Spread (30 years): 30 feet
Flowers: inconspicuous
Wind Resistance: excellent in younger trees. Very old trees tend to topple in high winds due to great weight and shallow roots.
Grows at Elevation: 0-3,000 feet depending on the species.
Rainfall: 10" + (or watered)
Soil: grows in salty, sandy, poor or deep soil.
Remarks: Introduced to Hawaii. Native to the South Pacific, Australia and India. Several similar species. Medium to high maintenance. Fallen needles create considerable debris, and the small cones are very uncomfortable to bare feet. NOT GENERALLY RECOMMENDED FOR LANDSCAPING EXCEPT IN RARE INSTANCES WHERE IT IS NECESSARY TO SCREEN HOMES DIRECTLY EXPOSED TO STRONG SALT WINDS. DO NOT PLANT CLOSER THAN 80 FEET FROM BUILDINGS.

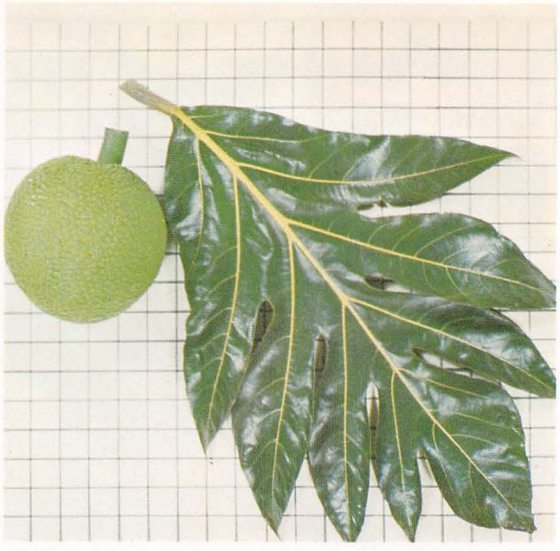
Common Name: Breadfruit
Scientific Name: Artocarpus altilis
Other Names: Ulu (Hawaii), Dugdug (Guam), A. communis, A. incisus.
Mature Height: 60 feet
Crown Spread (30 years): 40 feet
Flowers: white
Wind Resistance: good
Grows at Elevation: 0-1,000 feet.
Rainfall: 40" + (or watered)
Soil: grows in fairly salty, sandy, deep, or wet soil.
Remarks: Probably a prehistoric introduction to Hawaii and other islands in the Pacific and Indian Oceans. Medium to high maintenance, especially when fruiting. An attractive tree but not generally recommended for landscaping in military areas since the fruit is seldom eaten by those unfamiliar with its use and generally ends up as bulky debris.

Common Name: Chinese Banyan
Scientific Name: Ficus microcarpa
Other Names: Malayan Banyan
Mature Height: up to 60 feet
Crown Spread (30 years): 90 feet
Flowers: inconspicuous
Wind Resistance: good
Grows at Elevation: 0-2,000 feet
Rainfall: 40" + (or watered)
Soil: grows in salty, sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to areas of souther Asia. Drops large quantities of small leaves and fruit. Difficult to maintain grass under this species. Medium to high maintenance. Recommended only for parks, golf courses, school grounds, or other large open areas where leaves will be picked up by power equipment. DO NOT PLANT CLOSER THAN 45 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES. Roots can cause serious damage.

Ironwood
Casuarina sp.

Breadfruit
Artocarpus altilis

All Grid Squares in Close-up Photos are 1" square



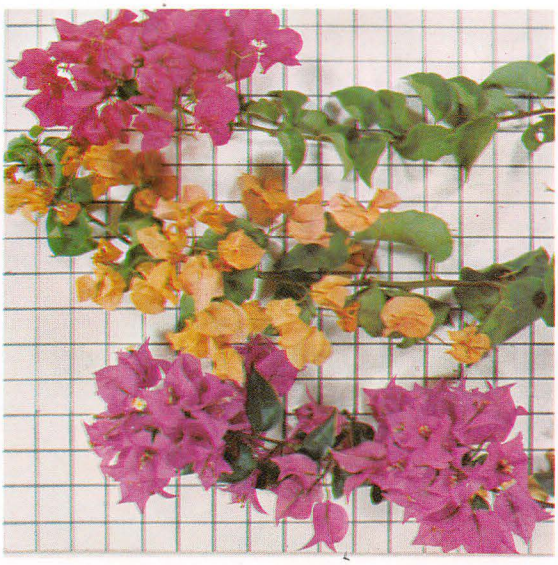
Chinese Banyan
Ficus microcarpa

Common Name: Bougainvillea
Scientific Name: Bougainvillea sp.
Other Names: Pukanwila (Hawaii) Putitainubyu (Guam)
Mature Height: 10 feet
Crown Spread (30 years): 40 feet, a trailing woody shrub.
Flowers: most of the year, various colors: white, orange, red, purple; in several shades depending on the species and variety.
Wind Resistance: fair; large bushes may topple in the wind.
Grows at Elevation: 0-2,500 feet.
Rainfall: 25" + (or watered)
Soil: grows in sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. Native to South America. Low to medium maintenance. Recommended for general use in administrative, commercial, and industrial areas as an attractive barrier. Should be used with care in housing areas due to THORNS. Good on steep banks such as those adjacent to highways. Should be trimmed annually where neat appearance is required. Can be trimmed to any size desired. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, SIDEWALKS, OR ROADS, unless a high degree of maintenance can be provided.

Common Name: Avocado
Scientific Name: Persea americana
Other Names: Alligator pear; Alageta (Guam)
Mature Height: up to 40 feet
Crown Spread (30 years): 40 feet
Flower: inconspicuous, cream colored
Wind Resistance: poor to fair
Grows at Elevation: 100 - 2,000 feet
Rainfall: 40" + (or watered)
Soil: prefers deep, well drained soil.
Remarks: Introduced to Hawaii. Native to the coastal parts of tropical America. Many varieties. Bears large, desirable fruit in summer, fall, winter, or spring, depending on the variety. Medium maintenance. High maintenance when fruiting. Single trees may be used in areas such as parks, or other common areas. Do not use as a yard tree in housing areas as it becomes an attractive nuisance. Do not concentrate numbers of this species due to debris from leaves and fallen fruit. DO NOT PLANT CLOSER THAN 50 FEET FROM BUILDINGS, OR 20 FEET FROM SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

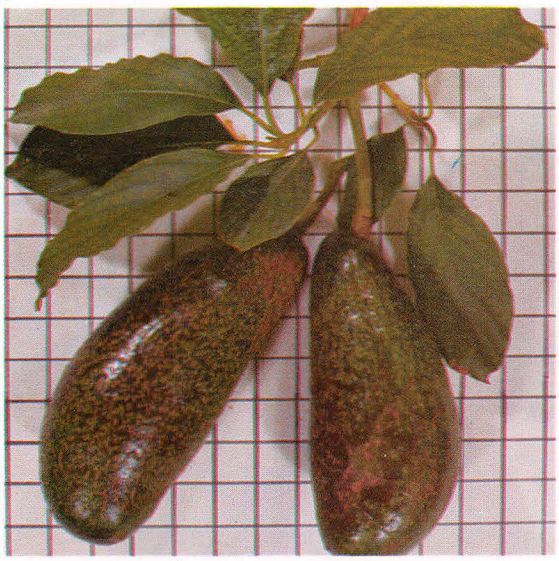
Common Name: Opiuma (Hawaii)
Scientific Name: Pithecellobium dulce
Other Names: Manila Tamarind, Kamachile (Guam)
Mature Height: up to 75 feet
Crown Spread (30 years): 60 feet
Flowers: whitish (inconspicuous)
Wind Resistance: excellent
Grows at Elevation: 0 - 1,500 feet.
Rainfall: 20" + (or watered)
Soil: grows in slightly salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced. Native to tropical America. Hawaiians called it Opiuma because seeds look like opium seeds. Medium maintenance. Fallen seed pods and THORNS are something of a problem. Recommended for administrative, commercial, or industrial areas of low rainfall and sandy or poor soil exposed to salt breezes. Because of THORNS not recommended for housing, park or playground areas. CAUTION: DO NOT PLANT CLOSER THAN 30 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

Bougainvillea
Bougainvillea sp.

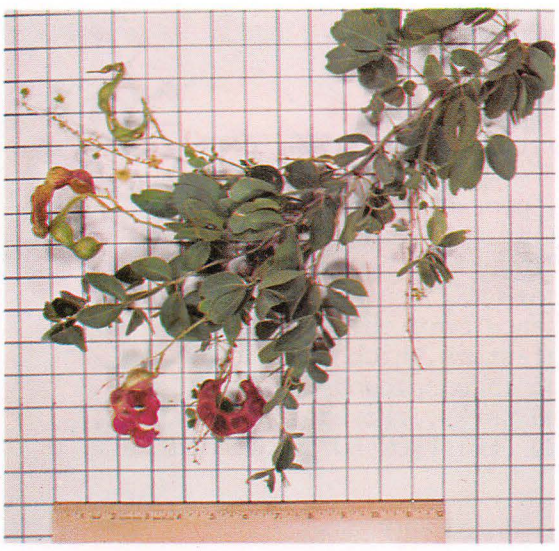


Avocado
Persea americana

All Grid Squares in Close-up Photos are 1" square



Opiuma
Pithecellobium dulce



Common Name: Elephant Ear
Scientific Name: Enterolobium cyclocarpum
Other Names: Earpod
Mature Height: 125 feet or more
Crown Spread (30 years): 100 feet
Flowers: April-May (white)
Wind Resistance: fair
Grows at Elevation: 100-2,000 feet
Rainfall: 35" + (or watered)
Soil: grows in salty, sandy, poor, wet, or deep soil.
Remarks: Native to tropical America. Grows rapidly, especially near water. Medium maintenance. Fallen seed pods are something of a problem. Recommended for parks, golf courses, school grounds, or other large open areas. DO NOT PLANT CLOSER THAN 50 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER OR WATERLINES. Roots can cause serious damage.

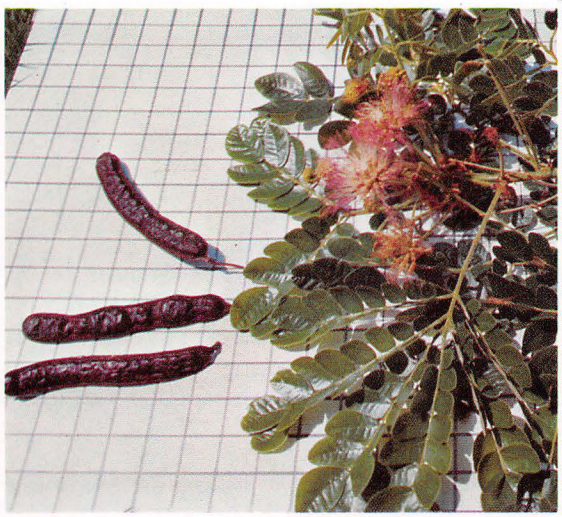
Common Name: Monkeypod
Scientific Name: Samanea saman
Other Names: Raintree, Pithecellobium saman, Ohai (Hawaii)
Mature Height: 100 feet or more
Crown Spread (30 years): 80 feet
Flowers: April-August (pink)
Wind Resistance: fair
Grows at Elevation: 0 to 1,500 feet
Rainfall: 30" + (or watered)
Soil: grows in salty, sandy, poor, wet, or deep soil.
Remarks: Native to tropical America. Grows rapidly, especially near water. Usually drops leaves Feb-Mar. Medium maintenance. Fallen seed pods are something of a problem. Recommended for parks, golf courses, school grounds, or other large, open areas. DO NOT PLANT CLOSER THAN 40 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES. Roots can cause serious damage.

Common Name: Hawaiian Koa
Scientific Name: Acacia koa
Other Names: Koa
Mature Height: up to 80 feet
Crown Spread (30 years): 40 feet
Flowers: pale yellow, inconspicuous, Oct-Feb
Wind Resistance: good
Grows at Elevation: 0-4,000 feet (best at elevations over 1,500 feet)
Rainfall: 20" + (or watered)
Soil: grows in slightly salty, sandy, shallow, poor or deep soil.
Remarks: Native to the Hawaiian Islands. Similar to Formosa koa but has wider, more curved "leaves", and paler yellow flowers without much fragrance, and longer, wider seed pods. Medium maintenance. Maintenance similar to Formosa koa but litter is somewhat larger and hence more objectionable. What appear to be leaves are actually broad leaf-stems which function as leaves. The true leaves are fewer, smaller, and inconspicuous. (see close-up photo). Recommended for use in semi-improved parks, recreation, training, or watershed areas. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

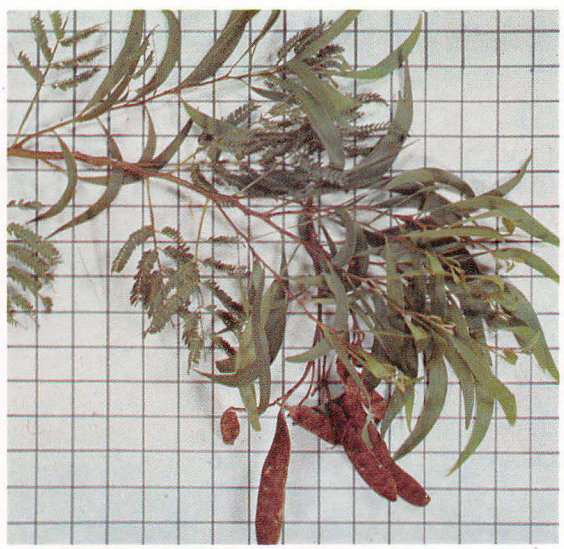
Elephant Ear
Enterolobium cyclocarpum

Monkeypod
Samanea saman

All Grid Squares in Close-up Photos are 1" square



Hawaiian Koa
Acacia koa



Common Name: Formosa Koa
Scientific Name: Acacia confusa
Other Names: Formosan Koa
Mature Height: up to 60 feet
Crown Spread (30 years): 40 feet
Flowers: bright yellow
Wind Resistance: good
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: grows in slightly salty, sandy, shallow, poor or deep soil.
Remarks: Introduced. Native to the Philippines and Taiwan. Resembles the Hawaiian Koa in many ways, but has narrower, straighter "leaves", bright yellow, fragrant, flower heads and shorter, narrower pods. Low maintenance. Fallen leaves and seed pods may be a problem but are so small and neat that they are not unattractive on the ground. Recommended for general use in housing, parks, administrative, commercial, and industrial areas. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

Common Name: Haole Koa (Hawaiian name)
Scientific Name: Leucaena glauca
Other Names: Koa haole, Tangen-Tangen (Guam) Ipil-Ipil (Philippines)
Mature Height: up to 30 feet
Crown Spread (30 years): 10 feet
Flowers: white or very pale yellow
Wind Resistance: good
Grows at Elevation: 0-2,500 feet (or more)
Rainfall: 10" + (or watered)
Remarks: Introduced. Found throughout Pacific and Asian areas. In Hawaii called Haole Koa because the haoles (foreigners) introduced it and its leaves resemble the true leaves of the Hawaiian Koa. NOT RECOMMENDED FOR LANDSCAPING. Included here only for information since it is commonly found on unimproved land adjacent to landscaped property. Valuable as cover for eroding lands but once established, very difficult to eradicate. High in protein. Good cattle and horse food but causes horses to lose their hair.

Common Name: Kiawe
Scientific Name: Prosopis pallida
Other Names: Algaroba, Mesquite, Prosopis chilensis
Mature Height: up to 60 feet
Crown Spread (30 years): up to 60 feet
Flowers: pale yellow, inconspicuous
Wind Resistance: generally poor, shallow rooted
Grows at Elevation: 0-2,000 feet
Rainfall: 10" + (or watered)
Soil: grows in salty, sandy, shallow, poor, or deep soils.
Remarks: Introduced to Hawaii from the Royal Gardens in Paris, France in 1828, but actually native to northern Peru. Good for soil stabilization and cattle feed in dry lowland areas. Found in the same areas and may be confused with the Opiuma (Pithecellobium dulce). The Kiawe is not recommended for any type of landscaping because of VERY LARGE THORNS, but in newly developed areas it may be advantageous to retain Kiawe trees until other newly planted trees are of sufficient size that the Kiawe trees may be removed without denuding the area. Note: There are thornless Kiawe trees, which are entirely satisfactory for landscaping, especially in dry areas. Individual trees should be inspected before a decision is made to remove them.

Formosa Koa
Acacia confusa

Haole Koa
Leucaena glauca

All Grid Squares in Close-up Photos are 1" square

Kiawe
Prosopis pallida

Common Name: Tamarind
Scientific Name: Tamarindus indica
Other Names: Kamalindo (Guam)
Mature Height: up to 75 feet
Crown Spread (30 years): 30 feet
Flowers: yellow, small
Wind Resistance: generally excellent. May be brittle in very high winds.
Grows at Elevation: 0 - 1,000 feet.
Rainfall: 30" + (or watered)
Soil: grows in fairly salty, sandy, shallow, poor or deep (not wet) soil.
Remarks: Introduced to Hawaii. Probably in 1797. Native to tropical Africa and Asia. Grows well in dry lowland areas. Generally low maintenance except when dropping fruit; then medium maintenance. Fruit is edible and similar to the preserved "seed" candy favored by children in Hawaii and the Orient. THORNS. Single trees may be used as specimens in areas such as parks (not "Tot-Lots") but do not concentrate numbers of this species due to debris. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

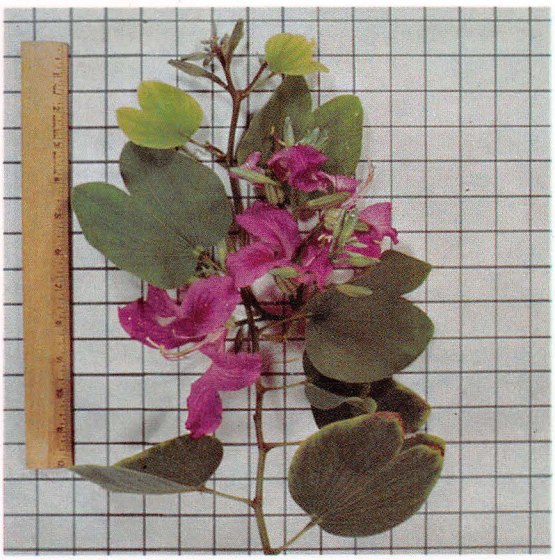
Common Name: Orchid Tree
Scientific Name: Bauhinia spp.
Other Names: Butterfly Tree; Flores de Mariposa (Guam)
Mature Height: up to 40 feet
Crown Spread (30 Years): 30 feet
Flowers: purple, lavender, yellow, orange or white depending on the species. Bloom in the fall, winter or spring.
Wind Resistance: fair to good.
Grows at Elevation: 0 - 2,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. About 300 species in the Genus Bauhinia. Most common of these trees in Hawaii are the Pink Bauhinia or St. Thomas Tree (B. monandra) which has pink flowers with purple markings, the Hong Kong Orchid Tree (B. blakeana) which has rose-purple flowers, and yellow Bauhinia (B. tomentosa) which has yellow flowers; one of the five petals has a red spot. Medium maintenance. Grows rapidly. Recommended for general use in housing, parks, administrative, commercial and industrial area. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, POWER, SEWER OR WATERLINES, OR 5 FEET FROM SIDEWALKS OR ROADS.

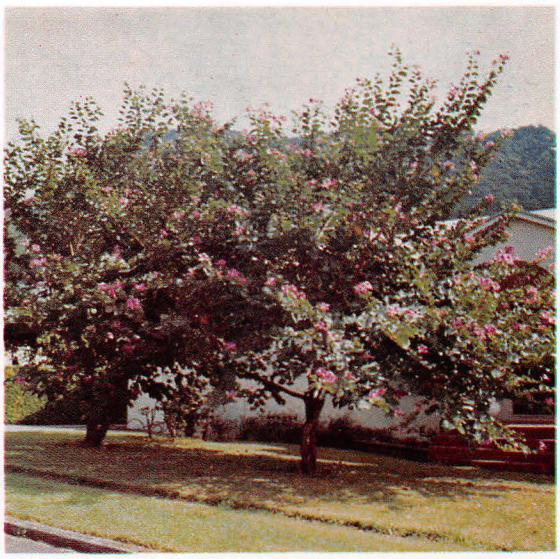
Common Name: Golden Shower
Scientific Name: Cassia fistula
Other Names: Indian Laburnum, Pudding Pipe Tree
Mature Height: 45 feet
Crown Spread (30 years): up to 50 feet
Flowers: yellow; March to August
Wind Resistance: fair
Grows at Elevation: 0-1,500 feet
Rainfall: 30" + (or watered)
Soil: prefers heavy loam but will grow in fairly salty, sandy, shallow, poor, wet, or deep soils.
Remarks: Introduced to Hawaii. Native to India. Medium to heavy maintenance. Seeds, flowers, and leaves create litter. Trees need to be trimmed every 3-5 years or they assume an unruly appearance. Recommended for general use in administrative, commercial, industrial, park, golf course, or housing areas. Trees should be planted as single specimens rather than in rows or groups. In quantity they create excessive maintenance problems and tend to lose their spectacular effect. Do not confuse with the Gold Tree, Tabebuia donnel-smithii. CAUTION: DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER, SEWER OR WATERLINES, OR 15 FEET FROM SIDEWALKS OR ROADS.

Tamarind
Tamarindus indica

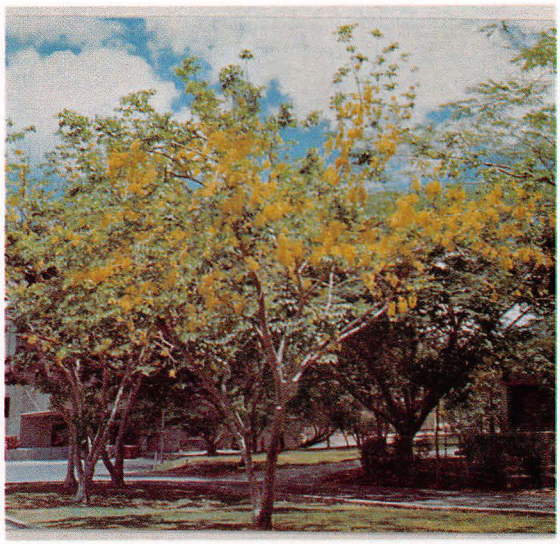
Orchid Tree
Bauhinia spp.

All Grid Squares in Close-up Photos are 1" square





Golden Shower
Cassia fistula



Common Name: Pink and White Shower Tree
Scientific Name: Cassia javanica
Mature Height: up to 40 feet
Crown Spread (30 years): 40 feet
Flowers: pink; March to May
Wind Resistance: good
Grows at Elevation: 0 - 2,000 feet
Rainfall: 25" + (or watered)
Soil: prefers heavy loam. Will grow in slightly salty, sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii, probably around 1870. Native to tropical Asia. Medium to High Maintenance. Recommended for use in housing and park areas as single "specimen" trees. Do not concentrate this species since when grouped they lose their striking effect and create excessive debris, especially when dropping seeds. These trees need to be trimmed about every two or three years to maintain an attractive shape. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS. (Remarks for this species also apply to the closely related Pink or "Coral" Shower, C. grandis, Rainbow Shower, C. javania x C. fistula, and others except that Rainbow Shower is sterile and does not have seeds.)

Common Name: Scrambled Egg
Scientific Name: Cassia glauca
Other Names: Kolomona (Hawaiian name)
Mature Height: 20 feet
Crown Spread (30 years): 20 feet
Flowers: yellow-orange; all year
Wind Resistance: good
Grows at Elevation: 0-1,500 feet
Rainfall: 20" + (or watered)
Soil: grows in fairly salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to Southeast Asia. Low to medium maintenance. Seeds and flowers create litter, but not excessive. Recommended for general use in administrative, commercial, industrial park, golf course, or housing areas. Called "Kolomona" as the Hawaiian word for Solomon, referring to the Biblical quotation "Solomon in all his glory ---". CAUTION: DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 5 FEET FROM SIDEWALKS OR ROADS.

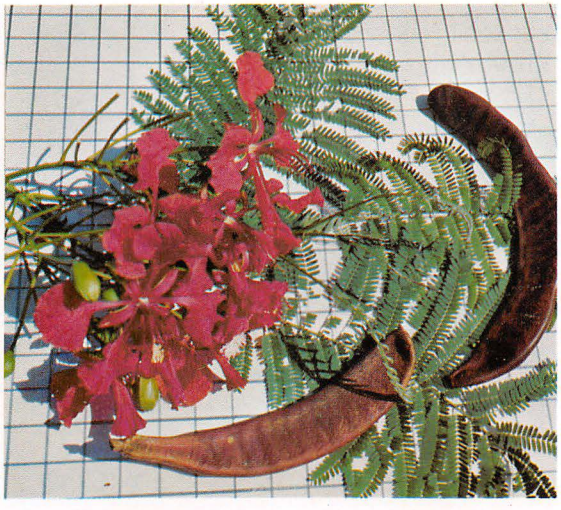
Common Name: Royal Poinciana
Scientific Name: Delonix regia
Other Names: Flame Tree
Mature Height: 50 feet
Crown Spread (30 years): 50 feet
Flowers: red to crimson, January to September
Wind Resistance: excellent
Grows at Elevation: 0-1,500 feet
Rainfall: 25" + (or watered)
Soil: grows in salty, sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. Native to Madagascar. Medium to heavy maintenance. Seeds, flowers, and leaves create litter. Recommended for general use in administrative, commercial, industrial, park, golf course, or housing areas. Trees should be planted as single specimens rather than in rows or groups. In quantity they create excessive maintenance problems and tend to lose their spectacular effect. Do not confuse with the African Tulip, Spathodea campanulata, which grows in a more upright form. CAUTION: DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES OR 10 FEET FROM SIDEWALKS OR ROADS.

Pink and White Shower
Cassia javanica

Scrambled Egg
Cassia glauca

All Grid Squares in Close-up Photos are 1" square

Royal Poinciana
Delonix regia



Common Name: Colvillea
Scientific Name: Colvillea racemosa
Mature Height: up to 40 feet
Crown Spread (30 years): 50 feet
Flowers: orange; October to November
Wind Resistance: poor
Grows at Elevation: 100 - 2,000 feet
Rainfall: 40" + (or watered)
Soil: grows in sandy (not salty), shallow or deep soil.
Remarks: Introduced to Hawaii in 1918. Native to South Africa. Medium maintenance. Recommended for use in housing and park areas as single "specimen" trees. Do not concentrate these trees since when grouped they lose their striking effect. Not generally desirable as a shade tree since they lose their leaves and are bare in the winter and spring. This tree blooms in the late fall when few other trees are blooming. DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 15 FEET FROM SIDEWALKS OR ROADS.

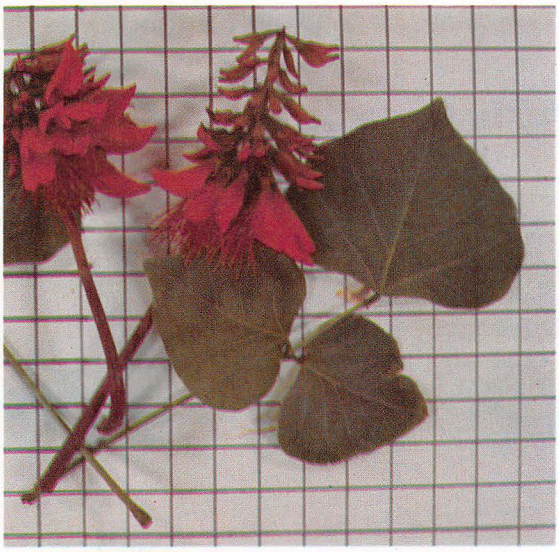
Common Name: Tiger Claw
Scientific Name: Erythrina variegata
Other Names: Coral Tree; Gaogao, Gabgab (Guam)
Mature Height: up to 40 feet
Crown Spread (30 years): 40 feet
Flowers: scarlet clusters; spring, usually February
Wind Resistance: good
Grows at Elevation: 0 - 2,000 feet
Rainfall: 10" + (or watered)
Soil: grows in salty, sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. Native to areas from India to southern Polynesia. Especially good for dry areas. Recommended for general use in housing, park, administrative, and commercial areas. Low to medium maintenance. Do not concentrate this species, since when grouped they lose their striking effect. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

Common Name: Mock Orange
Scientific Name: Murraya paniculata
Other Names: Jessamine, Orange Jessamine Jasmine
Mature Height: up to 20 feet
Crown Spread (30 years): 10 feet; but not critical, easily pruned.
Flowers: small, white, fragrant; season of flowering varies.
Wind Resistance: excellent
Grows at Elevation: 0 - 4,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy (not salty), shallow, poor or deep (not wet) soil.
Remarks: Introduced to Hawaii. Native to areas from India to the Philippines. Used for hedges. Grows slowly. Low to Medium maintenance. Recommended for for general use in housing, parks, administrative, commercial and industrial areas where hedges are desired. Must be trimmed lightly about every two months to maintain in an attractive and neat condition. IF THE HEDGE IS TO BE 3 FEET OR MORE HIGH, DO NOT PLANT CLOSER THAN 6 FEET FROM BUILDINGS, OR 3 FEET FROM SIDEWALKS OR ROADS. (This is not the same species called Mock Orange in the Continental U.S.)

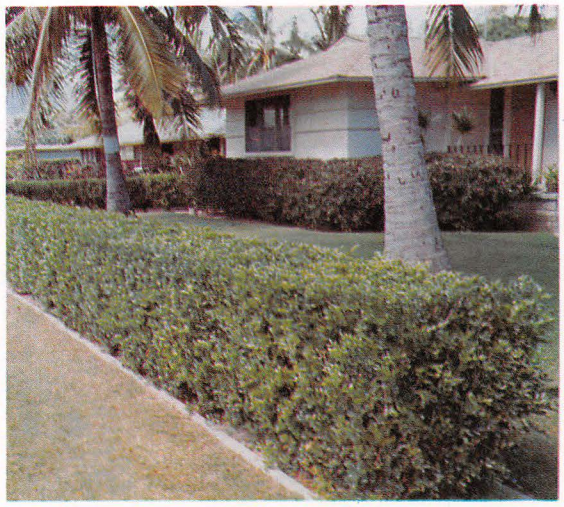
Colvillea
Colvillea racemosa

Tiger Claw
Erythrina variegata

All Grid Squares in Close-up Photos are 1" square



Mock Orange
Murraya paniculata

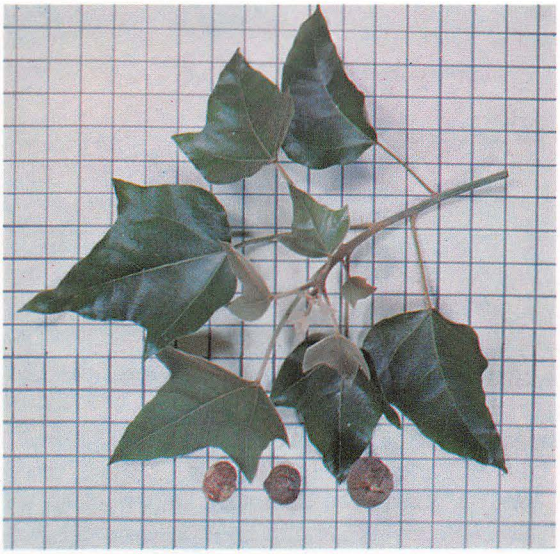


Common Name: Kukui (Hawaii)
Scientific Name: Aleurites moluccana
Other Names: Candlenut Tree; Lumbang (Guam)
Mature Height: up to 60 feet
Crown Spread (30 years): 40 feet
Flowers: white clusters; in winter
Wind Resistance: good
Grows at Elevation: 0 - 3,000 feet
Rainfall: 50" + (or watered)
Soil: grows in sandy, wet or deep soil.
Remarks: A prehistoric introduction to Hawaii. Low to Medium maintenance. Fallen nuts are something of a problem. Recommended for general use in housing, park, administrative, commercial, and industrial areas. Grows rapidly. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES OR 10 FEET FROM SIDEWALKS OR ROADS.

Common Name: Beefsteak
Scientific Name: Acalypha wilkesiana
Other Names: Copper Leaf, Jacob's Coat
Mature Height: up to 15 feet
Crown Spread (30 years): 20 feet, but not critical, easy to trim.
Flowers: inconspicuous
Wind Resistance: good
Grows at Elevation: 0 - 1,000 feet
Rainfall: 20" + (or watered)
Soil: grows in slightly salty, sandy, or deep soil.
Remarks: Introduced to Hawaii. Native to Fiji. used for hedges or as single plants. Grows rapidly and is shade tolerant. Recommended for general use in housing, park, administrative, commercial and industrial areas. Low maintenance. DO NOT PLANT CLOSER THAN 4 FEET FROM BUILDINGS, OR 3 FEET FROM SIDEWALKS OR ROADS.

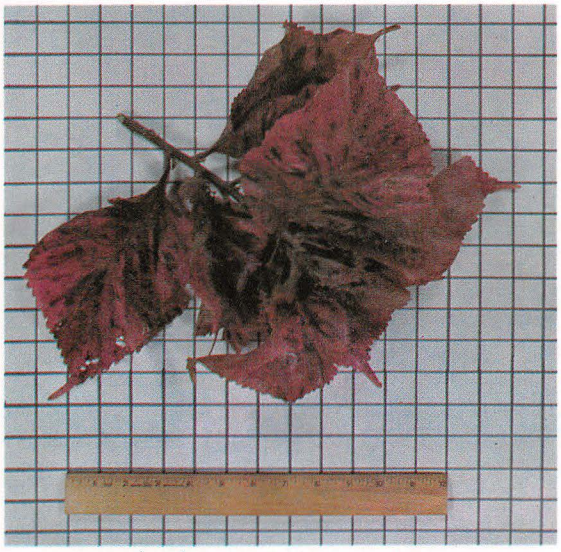
Common Name: Castor Bean
Scientific Name: Ricinus communis
Other Names: Agaliya (Guam)
Mature Height: up to 30 feet, usually 9 feet.
Crown Spread: up to 6 feet
Flowers: reddish, in panicles
Wind Resistance: poor to fair
Grows at Elevation: 0 - 3,000 feet
Rainfall: 20" + (or watered)
Soil: grows in slightly salty, sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. Found in many tropical parts of the world. Probably originated in Africa. This species was formerly used throughout much of the world for oils, medicine, and to preserve leather. THE SEEDS AND FOLIAGE ARE POISONOUS TO EAT. In Hawaii and Guam it is considered a weed and is not suitable for landscaping. It is included here only for information since it is commonly found on unimproved land adjacent to landscaped property. (Note: The color of the plant and leaves may vary from light green to deep purple depending on the conditions where it is growing.)

Kukui
Aleurites moluccana

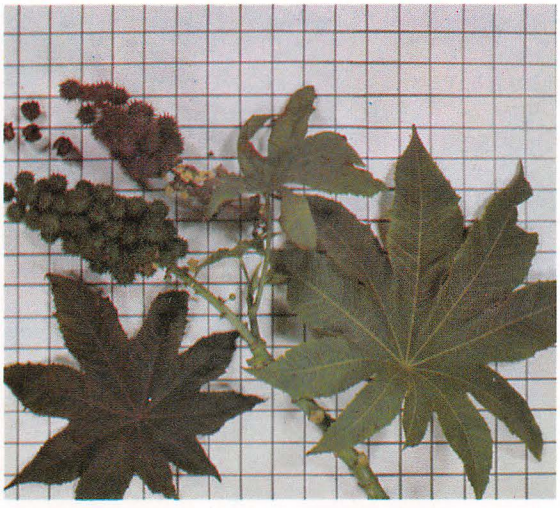


Beefsteak
Acalypha wilkesiana

All Grid Squares in Close-up Photos are 1" square



Castor Bean
Ricinus communis

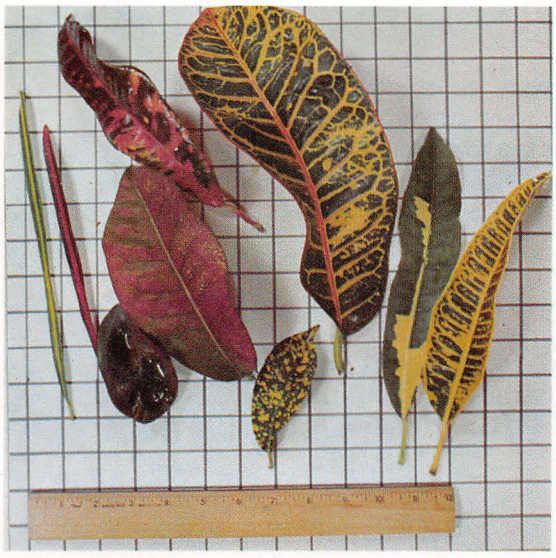


Common Name: Croton
Scientific Name: Codiaeum variegatum
Other Names: Lestun Puyitos (Guam)
Mature Height: up to 20 feet
Crown Spread (30 years): 15 feet but not critical, easy to trim.
Flowers: inconspicuous
Wind Resistance: fair to good
Grows at Elevation: 0 - 2,500 feet
Rainfall: 40" (or watered)
Soil: grows in sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to areas from Malaysia to Fiji and Australia. Many named and unnamed varieties of different sizes, colors, leaf shape and growth rates. Colors are most brilliant in areas near the sea. SALT air is apparently responsible. Generally very slow growing. Very low to Medium maintenance, depending on the variety. Tolerant to partial shade. Used for hedges or as single plants. Recommended for general use in housing, park, administrative, commercial and industrial areas. DO NOT PLANT CLOSER THAN 4 FEET FROM BUILDINGS OR 3 FEET FROM SIDEWALKS OR ROADS.

Common Name: Mango
Scientific Name: Mangifera indica
Mature Height: up to 70 feet
Crown Spread (30 years): 40 feet
Flowers: cream colored; winter and spring
Wind Resistance: fair to good
Grows at Elevation: 100 - 2,000 feet
Rainfall: 40" + (or watered)
Soil: grows in sandy, shallow, poor, wet, or deep soil. Prefers well drained, rich soil.
Remarks: Introduced to Hawaii. Native to India. Many varieties. The fruit, especially from horticultural varieties, is very desirable. However, each fruit must generally be bagged while still on the tree to protect it from fruit flies. High maintenance. Due to the amount of debris (fallen fruit and leaves) produced, this species is generally unsuitable for military landscaping in any type of improved area. NOT RECOMMENDED FOR MILITARY LANDSCAPING.

Common Name: Christmas Berry
Scientific Name: Schinus terebinthifolius
Other Names: Wilelaiki, Nani-O-Hilo (Hawaii)
Mature Height: 15 feet
Crown Spread (30 years): 20 feet
Flowers: inconspicuous; fruit is red and decorative
Wind Resistance: good
Grows at Elevation: 0 - 3,000 feet
Rainfall: 10" + (or watered)
Soil: grows in slightly salty, sandy, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to Brazil. Low to Medium maintenance. Recommended for general use in housing, park, administrative, commercial and industrial areas. Especially good in dry areas with poor soils. DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDINGS, WATER, OR SEWERLINES, OR 4 FEET FROM SIDEWALKS OR ROADS.

Croton
Codiaeum variegatum



Mango
Mangifera indica

All Grid Squares in Close-up Photos are 1" square

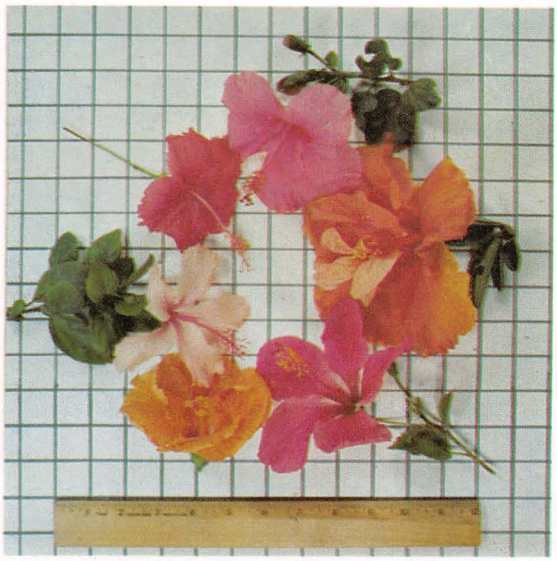
Christmas Berry
Schinus terebinthifolius

Common Name: Hibiscus
Scientific Name: Hibiscus rosa-sinensis and many hybrids
Other Names: Aloalo (Hawaii) Gumamela (Guam)
Mature Height: 25 feet
Crown Spread (30 years): 10 feet. Easy to prune to any size or shape.
Flowers: Year around. Red, pink, orange, yellow, or white in many shades or combinations of colors, and in many shapes and forms according to variety, both singles and doubles.
Wind Resistance: good
Grows at Elevation: 0-3,000 feet.
Rainfall: 30"+ (or watered)
Soil: grows in sandy, shallow, poor, wet or deep soil.
Remarks: Introduced to Hawaii and many other parts of the world from Asia. Low to Medium maintenance. Recommended for general use in administrative, commercial, industrial, park, golf course, or housing areas, for hedges or as single shrubs. DO NOT PLANT CLOSER THAN 4 FEET FROM BUILDINGS, SIDEWALKS, AND ROADS.

Common Name: Hau
Scientific Name: Hibiscus tiliaceus
Other Names: Hau Bush (Hawaii) Pago (Guam)
Mature Height: 25 feet.
Crown Spread (30 years): 80 feet and forms new plants wherever it touches the ground.
Flowers: yellow to reddish; winter months.
Wind Resistance: excellent
Grows at Elevation: 0-1,500 feet
Rainfall: 10"+ (or watered)
Soil: grows in salty, sandy, shallow, poor, wet, or deep soil.
Remarks: Probably introduced to Hawaii in prehistoric times. Heavy maintenance. Fallen leaves are a constant problem. Not generally recommended except as a windbreak or screen in semi-improved or unimproved areas. It forms an impassible thicket and spreads so rapidly that unless cut back yearly it may take over an area. DO NOT PLANT CLOSER THAN 40 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, SIDEWALKS AND ROADS.

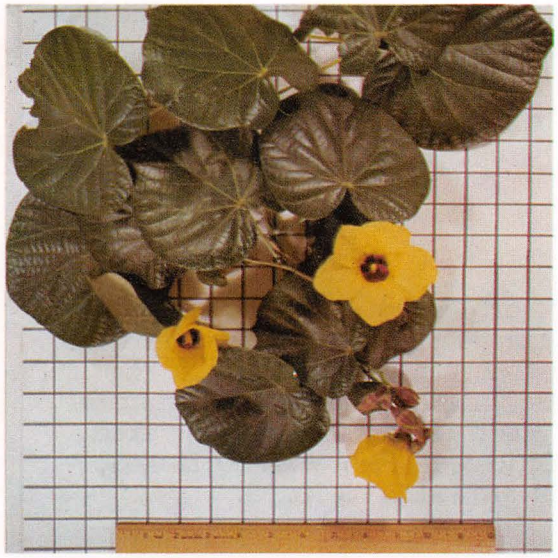
Common Name: Milo (Hawaii)
Scientific Name: Thespesia populnea
Other Names: Banalo, Kilulu, Kiluk (Guam)
Mature Height: 40 feet
Crown Spread (30 years): 50 feet
Flowers: yellow; all year
Wind resistance: good
Grows at Elevation: 0-2,000 feet.
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, poor, or deep soil.
Remarks: Probably introduced to Hawaii in prehistoric times. Medium to Heavy maintenance. Tends to drop leaves continually and seeds pods in season. Recommended especially for use in beach areas exposed to salt, and semi-improved portions of parks and golf courses. Can be used in housing, but should not be used large numbers. CAUTION: DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 6 FEET FROM SIDEWALKS OR ROADS.

Hibiscus
Hibiscus rosa-sinensis



Hau
Hibiscus tiliaceus

All Grid Squares in Close-up Photos are 1" square



Milo
Thespesia populnea

Common Name: True Kamani
Scientific Name: Calophyllum inophyllum
Other Names: Alexandrian Laurel, Palo Maria (Guam)
Mature Height: 60 feet
Crown Spread (30 years): 50 feet
Flowers: white; fragrant
Wind resistance: good
Grows at Elevation: 0-1,000 feet
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, poor or deep soil.
Remarks: Probably introduced to Hawaii in prehistoric times. Medium maintenance. Fallen seeds may be something of a problem seasonally. Recommended for general use in housing, parks, administrative, commercial and industrial areas. DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER SEWER, OR WATERLINES OR SIX FEET FROM SIDEWALKS OR ROADS.

Common Name: Autograph Tree
Scientific Name: Clusia rosea
Other Names: Copey, Scotch Attorney
Mature Height: 50 feet
Crown Spread (30 years): 40 feet
Flowers: Large, whitish or pale pink
Wind Resistance: good
Grows at Elevation: 0-1,500 feet
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to the West Indies. Low maintenance. Called "autograph" tree because words or designs can be scratched on the leathery leaves. Recommended for general use in administrative, commercial, industrial, park or housing areas. A very good, if not spectacular, tree to use for landscaping. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

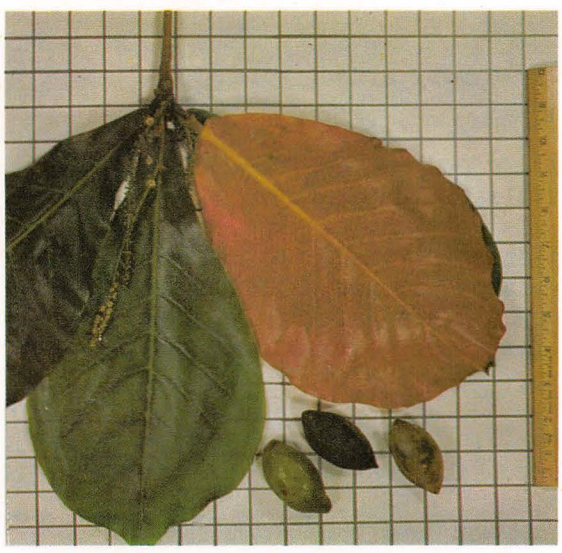
Common Name: False Kamani
Scientific Name: Terminalia catappa
Other Names: Tropical Almond, Talisai (Guam)
Mature Height: 70 feet
Crown Spread (30 years): 80 feet
Flowers: inconspicuous, white; unpleasant odor.
Wind Resistance: good
Grows at Elevation: 0-1,000 feet
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to the East Indies. Very high maintenance. Large leaves turn yellow, orange and brown and fall almost continuously with a heavy seasonal fall after which the tree is bare for a short period of time. Fallen leaves and almond-shaped seeds are a problem. Not recommended for landscaping except in semi-improved beach areas exposed to salt-laden sea breezes. CAUTION: Do not confuse with the True Kamani (Calophyllum inophyllum). DO NOT PLANT CLOSER THAN 40 FEET FROM BUILDINGS, POWER, SEWER, OR WATER LINES, OR 20 FEET FROM SIDEWALKS OR ROADS.

True Kamani
Calophyllum inophyllum

Autograph Tree
Clusia rosea

All Grid Squares in Close-up Photos are 1" square

False Kamani
Terminalia catappa

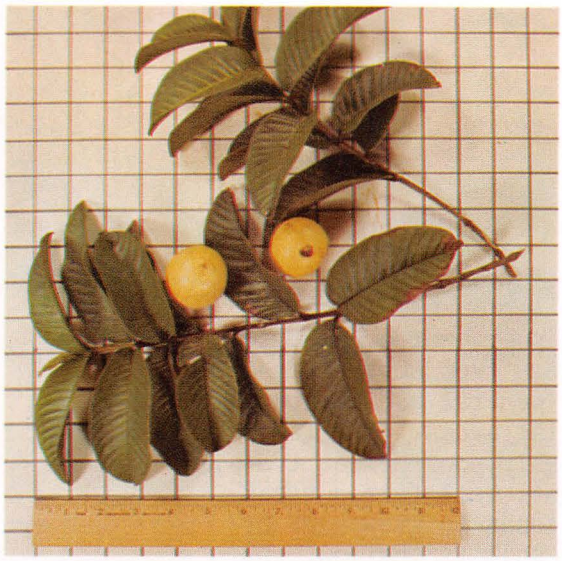


Common Name: Guava
Scientific Name: Psidium guajava
Other Names: Kuawa (Hawaii)
Mature Height: 25 feet
Crown Spread (30 years): 20 feet
Flowers: white
Wind Resistance: good
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: grows in slightly salty, sandy, poor or deep soil.
Remarks: Introduced to Hawaii and other islands of the Pacific. Native to tropical America. Medium maintenance. Produces edible fruit, good for jams and jellies. Not generally considered a landscaping tree since it is commonly found on unimproved lands adjacent to landscaped property. May be used occasionally in housing areas as a backyard tree. Do not concentrate, since the debris (leaves and fallen fruit) and the fruit flies attracted by this tree may become a problem. This is a good "kids tree". DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDING, SIDEWALKS, OR ROADS.

Common Name: Robusta Eucalyptus
Scientific Name: Eucalyptus robusta
Other Names: Swamp Mahogany
Mature Height: up to 200 feet, usually 80
Crown Spread (30 years): 30 feet
Flowers: white to yellow, inconspicuous
Wind Resistance: generally good, but may break in very strong winds.
Grows at Elevation: 100-4,000 feet
Rainfall: 30" + (or watered)
Soil: grows in salty, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to Australia. There are about 500 species of trees and shrubs in the Genus Eucalyptus. This species is one of the most common of the 70 or more species introduced in Hawaii. It grows very rapidly and tends to drop large amounts of leaves, twigs and branches. High maintenance. Not suitable for military landscaping due to debris. Other species are suitable for large open areas such as the perimeters of golf courses and parade grounds where debris will be picked up by power equipment. ON LANDSCAPE PLANS DO NOT SPECIFY ONLY EUCALYPTUS. BE SURE TO KNOW THE SPECIES NAME AND CHARACTERISTICS OF THE SPECIES TO BE PLANTED.

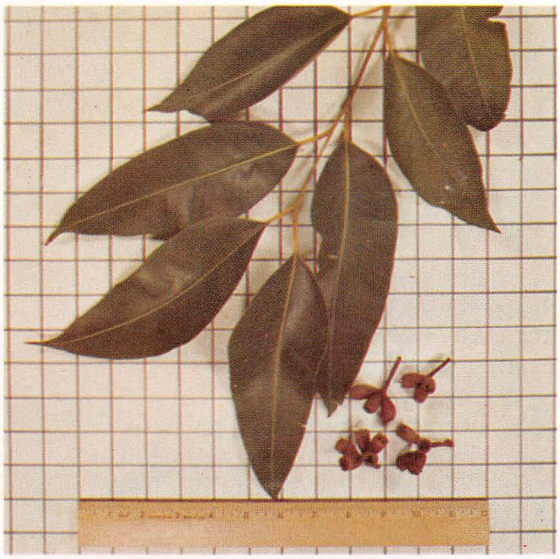
Common Name: River Redgum Eucalyptus
Scientific Name: Eucalyptus camaldulensis
Other Names: Murray Red Gum
Mature Height: up to 200 feet, usually 80
Crown Spread (30 years): 30 feet
Flowers: inconspicuous
Wind Resistance: generally good, but may break in very strong wind.
Grows at Elevation: 100-4,000 feet
Rainfall: 30" + (or watered)
Soil: grows in shallow, poor, wet or deep soil.
Remarks: Introduced to Hawaii. Native to Australia. There are about 500 species of trees and shrubs in the Genus Eucalyptus. This species is one of the most common of the 50 or more species introduced to Hawaii. It grows very rapidly and tends to drop fairly large amounts of leaves, twigs, and branches. Medium to High maintenance. A very attractive tree suitable for large open areas such as the perimeters of golf courses and parade grounds where debris will be picked up by power equipment. ON LANDSCAPE PLANS DO NOT SPECIFY ONLY EUCALYPTUS. BE SURE TO KNOW THE SPECIES NAME AND CHARACTERISTICS OF THE SPECIES TO BE PLANTED. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, SIDEWALKS, OR ROADS.

Guava
Psidium guajava



Robusta Eucalyptus
Eucalyptus robusta

All Grid Squares in Close-up Photos are 1" square



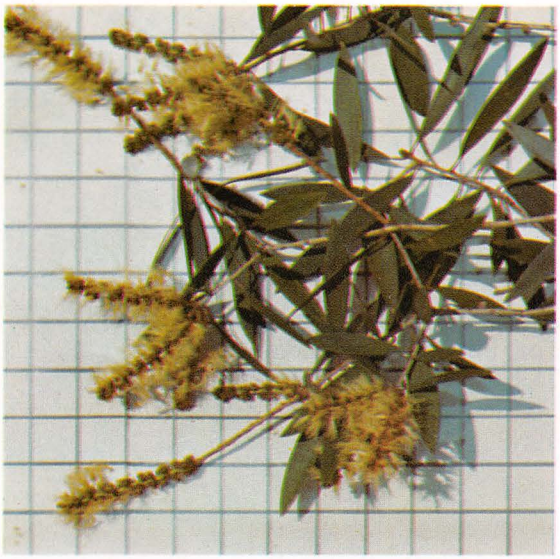
River Redgum Eucalyptus
Eucalyptus camaldulensis

Common Name: Paperbark
Scientific Name: Melaleuca leucadendron
Other Names: Cajeput Tree, Melaleuca quinquenervia
Mature Height: 60 feet
Crown Spread (30 years): 30 feet
Flowers: white or yellowish; all year
Wind Resistance: fair to good
Grows at Elevations: 0-3,000 feet
Rainfall: 30"+ (or watered)
Soil: grows in fairly salty, sandy, shallow, poor, wet or deep soil.
Remarks: Introduced to Hawaii. Native to areas from southern Asia to Australia. Low maintenance. Recommended for general use in housing, parks, administrative, commercial and industrial areas. CAUTION: Many young trees are grown using seed from genetically poor parent trees, and are crooked or deformed. Use only straight, well formed trees. This tree has an extensive root system which tends to grow near or on the surface of the ground especially where soil is shallow. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, POWER, SEWER, OR WATER-LINES, OR 5 FEET FROM SIDEWALKS AND ROADS.

Common Name: Octopus Tree
Scientific Name: Brassaia actinophylla
Other Names: Umbrella Tree, Rubber Tree, Brassaia.
Mature Height: 40 feet
Crown Spread (30 years): 50 feet
Flowers: red, April - November
Wind Resistance: good
Grows at Elevations: 0-2,500 feet
Rainfall: 20"+ (or watered)
Soil: grows in slightly salty, sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to Australia. Medium to heavy maintenance. Large leaves fall daily. The flowers and the insects frequenting the flowers, are attractive to song birds. Recommended for housing and semi-improved areas of parks and golf courses, but due to the amount of debris should not be used in large numbers. Not recommended for administrative or commercial areas. CAUTION: DO NOT PLANT CLOSER THAN 25 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

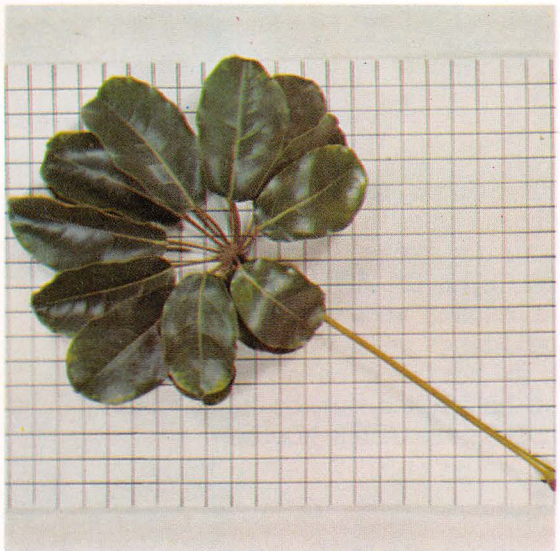
Common Name: Panax
Scientific Name: Polyscias guilfoylei
Mature Height: 20 feet
Crown Spread (30 years): 8 feet
Flowers: inconspicuous
Wind Resistance: excellent
Grows at Elevation: 0-1,500 feet
Rainfall: 20"+ (or watered)
Soil: grows in sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii from southern Polynesia. Medium maintenance. Useful and easily established as a hedge, but dead branches are ideal habitat for termites. PLANTS MUST BE CLEANED OF DEAD BRANCHES AT LEAST EVERY THREE MONTHS. Recommended for general use in administrative, commercial, industrial, park, golf course or housing areas. DO NOT PLANT CLOSER THAN 50 FEET FROM WOODEN BUILDINGS, OR CLOSER THAN 4 FEET FROM OTHER BUILDINGS, SEWER OR WATERLINES, SIDEWALKS, OR ROADS.

Paperbark Tree
Melaleuca leucadendron

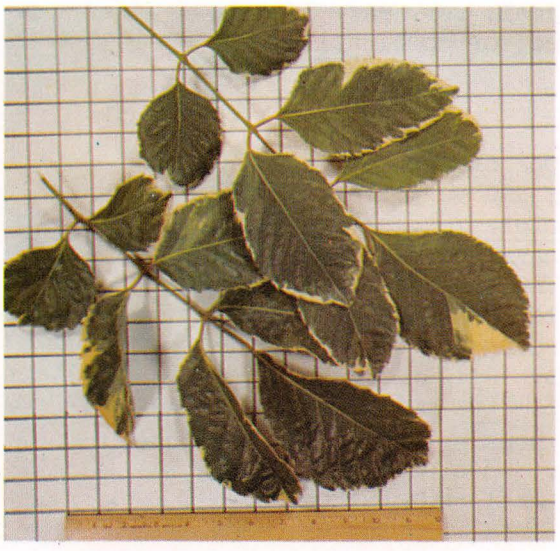


Octopus Tree
Brassaia actinophylla

All Grid Squares in Close-up Photos are 1" square



Panax
Polyscias guilfoylei

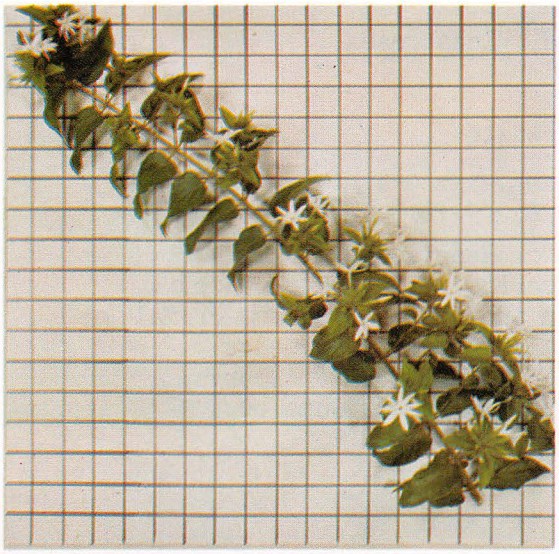


Common Name: Star Jasmine
Scientific Name: Jasminum multiflorum
Other Names: Jessamine, J. pubescens
Mature Height: up to 6 feet; a trailing shrub.
Crown Spread (30 years): not applicable
Flowers: white; year around
Wind Resistance: good
Grows at Elevation: 0 - 2,000 feet
Rainfall: 30" + (or watered)
Soil: prefers rich, deep soil
Remarks: Introduced to Hawaii. Native to India. Grows fairly rapidly. Low maintenance. Recommended for general use in administrative, commercial, industrial, park, golf course, or housing areas; for borders and edge trimming. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER. Debris such as bottle and pull tops, candy and cigarette wrappers and butts and wrappers must be picked out by hand. NO PLANTING SPACE RESTRICTIONS.

Common Name: Yellow Allamanda
Scientific Name: Allamanda cathartica
Other Names: Lani-ali'i (Hawaii)
Mature Height: by itself 6 feet; a climbing shrub.
Crown Spread (30 years): not applicable
Flowers: yellow; most of the year
Wind Resistance: fair
Grows at Elevation: 0-2,500 feet
Rainfall: 40" + (or watered)
Soil: grows in wet or deep soil.
Remarks: Introduced to Hawaii. Native to Brazil. Grows rapidly. Low maintenance. Not shade tolerant. Recommended for general use in administrative, commercial, industrial, park, golf course, and housing areas; for borders or large edge areas. DO NOT PERMIT THIS SHRUB TO CLIMB ON BUILDINGS OR OTHER WOODEN STRUCTURE. Moisture from this plant causes wood rot and the plant provides insects with easy access to buildings. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER. Debris such as bottle caps and pull tops, candy and cigarette wrappers and butts must be picked out by hand. DO NOT PLANT CLOSER THAN 4 FEET FROM WOODEN BUILDINGS OR OTHER WOODEN STRUCTURES.

Common Name: Plumeria
Scientific Name: Plumeria spp. (several species)
Other Names: frangipani, melia (Hawaii). See Remarks.
Mature Height: up to 30 feet, usually 15.
Crown Spread (30 years): 30 feet, but not critical; very easy to trim.
Flowers: many variations with white, yellow, red, or combinations.
Wind Resistance: poor to fair
Grows at Elevation: 0-1,500 feet
Rainfall: 20" + (or watered)
Soil: grows in fairly salty, shallow, sandy, poor or deep soil.
Remarks: Introduced to Hawaii. Several species and varieties. Native to tropical America. The Singapore plumeria, P. obtusa (on left in the close-up photo) and a similar species P. emarginata, have white flowers, and blunt, shiny green leaves, widest at the tip. These are evergreens. P. acuminata, also called P. acutifolia (in center of close-up photo) and the Red plumeria, P. rubra (on right of close-up photo) drop their leaves in winter and are bare for several months. All species produce a milky sap which in large quantities is POISONOUS. Low maintenance. Grows fairly rapidly. Recommended for general use in housing, parks, golf courses, administrative, commercial and industrial areas. When used as a screen use only P. obtusa. DO NOT PLANT CLOSER THAN 6 FEET FROM BUILDINGS.

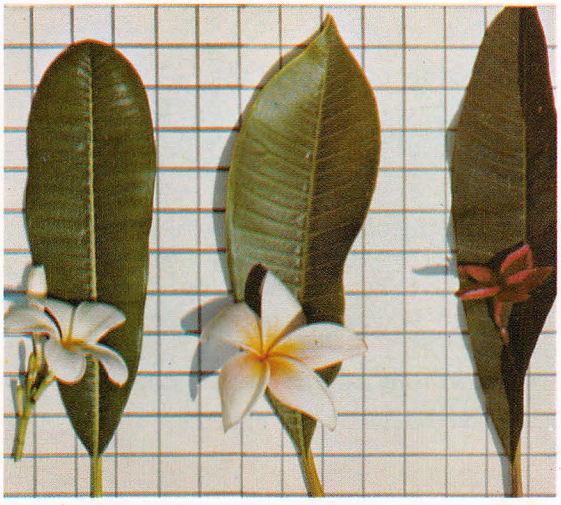
Star Jasmine
Jasminum multiflorum

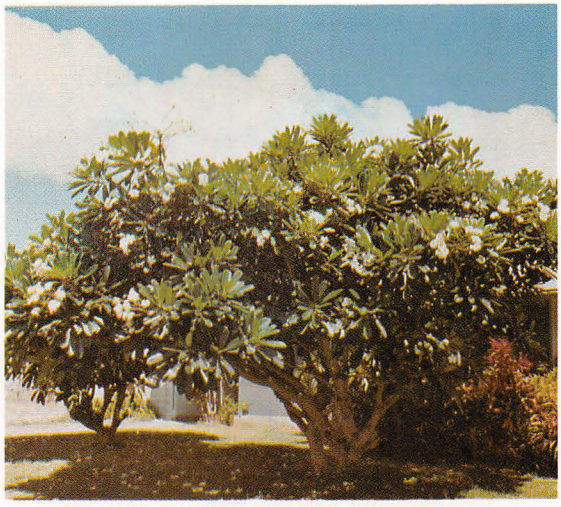


Yellow Allamanda
Allamanda cathartica

All Grid Squares in Close-up Photos are 1" square

Plumeria
Plumeria spp.



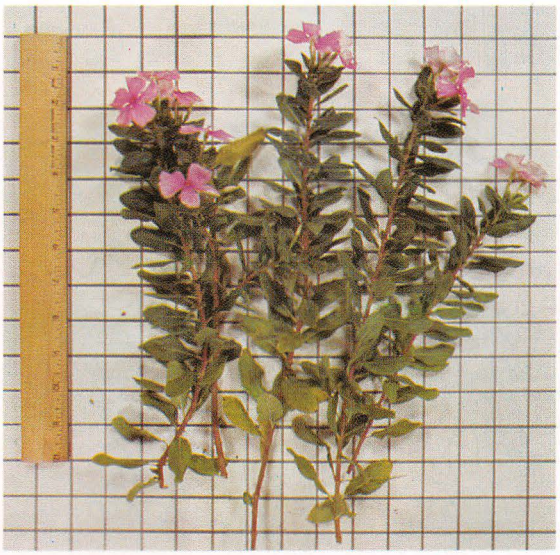


Common Name: Periwinkle
Scientific Name: Catharanthus roseus
Other Names: Chichirica (Guam), Lochnera rosea, Vinca rosea
Mature Height: 2 feet
Crown Spread: Not applicable
Flowers: Year around. Blue, purple, rose, or white
Wind Resistance: Fair
Grows at Elevation: 0-4,000 feet
Rainfall: 30" + (or watered)
Soil: will grow in sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii from tropical America. Low maintenance. Shade tolerant. Recommended for general use in administrative, commercial, industrial park, golf course, or housing areas; for borders and edge trimming. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER. Debris such as bottle and pull tops, candy, and cigarette wrappers must be picked out by hand. NO PLANTING SPACE RESTRICTIONS.

Common Name: Yellow Oleander
Scientific Name: Thevetia peruviana
Other Names: Be-Still Tree, Thevetia nereifolia
Mature Height: 30 feet
Crown Spread (30 years): 40 feet
Flowers: yellow, year around
Wind Resistance: good
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: will grow in slightly salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced in Hawaii. Native to topical America. Called Yellow Oleander because its leaves resemble those of the Oleander. (Nerium oleander) and because, like the Oleander, it is POISONOUS. Recommended for administrative areas, golf courses, and industrial areas. Low to Medium maintenance. Not recommended for housing, playgrounds, commercial areas, or any locations where small children play. CAUTION: DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

Common Name: Oleander
Scientific Name: Nerium oleander and N. indicum
Other Names: 'Oliwa, 'Oleana, 'Oliana (Hawaii)
Mature Height: 30 feet
Crown Spread (30 years): 10 feet
Flowers: white, pink, violet, orange, or red, depending on the plant, year round.
Wind Resistance: excellent
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: will grow in salty, sandy, shallow, poor or deep soil.
Remarks: Introduced to Hawaii. Native to areas from Iran to Japan. Commonly used for hedges in Hawaii. POISONOUS. Care should be taken in burning any debris since even the smoke can be irritating. Low to Medium maintenance. Recommended for golf courses, administrative, commercial and industrial areas. Not recommended for housing, playgrounds, or any locations where small children play. CAUTION: DO NOT PLANT CLOSER THAN 5 FEET FROM BUILDINGS, FENCES, POWER, SEWER, OR WATERLINES, SIDEWALKS OR ROADS.

Periwinkle
Catharanthus roseus



Yellow Oleander
Thevetia peruviana

All Grid Squares in Close-up Photos are 1" square

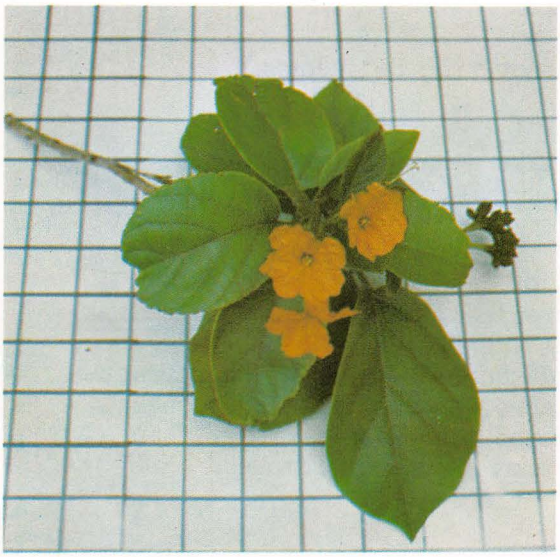
Oleander
Nerium oleander

Common Name: Kou-Haole
Scientific Name: Cordia sebestena
Other Names: Haole-Kou, Foreign Kou, Cordia, Geiger Tree
Mature Height: 40 feet
Crown Spread (30 years): 40 feet
Flowers: orange or scarlet
Wind Resistance: good
Grows at Elevation: 0-1,500 feet
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to the West Indies. Called "Kou-Haole" because it was introduced by the "haoles" (foreigners) and resembles the Hawaiian Kou (Cordia subcordata). Leaves are dark green, stiff, and rough to the touch. Low to medium maintenance. Recommended for general use in administrative, commercial, industrial, park or housing areas. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER OR WATERLINES, OR 5 FEET FROM SIDEWALKS OR ROADS.

Common Name: Beach Heliotrope
Scientific Name: Messerschmidia argentea
Other Names: Tree Heliotrope, tahinu, Tournefortia argentea, Hunig (Guam)
Mature Height: 20 feet
Crown Spread (30 years): 40 feet
Flowers: white
Wind Resistance: excellent
Grows at Elevation: 0-500 feet
Rainfall: 20" + (or watered)
Soil: grows in salty, shallow, poor, or deep soil.
Remarks: Probably a prehistoric introduction to Hawaii. Found in tropical shores from the Indian Ocean to the Pacific. Low to medium maintenance. Not a spectacular tree, but attractively shaped. A very good tree for landscaping. Recommended for general use in housing, parks, administrative, commercial and industrial areas. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS AND ROADS.

Common Name: Vitex
Scientific Name: Vitex trifolia
Other Names: Blue Vitex, Lagundi (Guam)
Mature Height: 20 feet
Crown Spread (30 years): 30 feet
Flowers: lavender or blue, most in the summer
Wind Resistance: excellent
Grows at Elevations: 0-4,000 feet
Rainfall: 20"+ (or watered)
Soil: grows in salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to areas from Asia to Australia. Although this species is frequently planted for hedges in Hawaii, and does not produce excessive ground litter, it grows so rapidly that it is nearly impossible to maintain in a neat appearing condition. High maintenance. Not recommended for landscaping except as a screen in semi-improved or unimproved areas, or around dumps, sanitary landfills, junkyards, or heavy industrial areas. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, SEWER, OR WATERLINES, SIDEWALKS AND ROADS.

Kou Haole
Cordia sebestena



Beach Heliotrope
Messerschmidia argentea

All Grid Squares in Close-up Photos are 1" square

Vitex
Vitex trifolia

Common Name: Angels Trumpet
Scientific Name: Datura candida
Other Names: Brugmansia candida, Belladona (not true Belladonna)
Mature Height: up to 25 feet
Crown Spread (30 years): 20 feet
Flowers: large, white, conspicuous; shaped like a hanging trumpet
Wind Resistenace: fair
Grows at Elevation: 100-3,000 feet.
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty) poor, wet, or deep soil.
Remarks: Introduced to Hawaii. Native to tropical America. Low to medium maintenance. This is an attractive shrub but THE FLOWERS AND FOLIAGE ARE POISONOUS. The flowers are of a size and shape which might be attractive to small children. This species should never be used for landscaping on military property. Any of these plants found on military property in any location where children might encounter them should be removed. NOT RECOMMENDED FOR MILITARY LANDSCAPING.

Common Name: Jacaranda
Scientific Name: Jacaranda acutifolia
Other Names: J. mimosaefolia, J. ovalifolia
Mature Height: up to 50 feet, usually 30
Crown Spread (30 years): 40 feet
Flowers: violet-blue, conspicuous. January to August; usually May & June
Grows at Elevation: 0-4,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty) shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to Brazil. Low to medium maintenance. Slow growing. Recommended for general use in housing, parks, golf courses, administrative, commercial, and industrial areas. DO NOT PLANT CLOSER THAN 20 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, OR 10 FEET FROM SIDEWALKS OR ROADS.

Common Name: Pink Tecoma
Scientific Name: Tabebuia pentaphylla
Other Names: Amapa, Roble Blanco, White Cedar, Tabebuia pallida, or Tabebuia triphylla
Mature Height: up to 60 feet, usually 20 feet.
Crown Spread (30 years): 20 feet
Flowers: pink, sometimes purple or white, season of flowering varies.
Wind Resistance: fair to good
Grows at Elevation: 0-1,000 feet
Rainfall: 30" + (or watered)
Soil: grows in slightly salty, poor, sandy, shallow or deep soil.
Remarks: Introduced to Hawaii. Native to Tropical America. Medium maintenance. Fallen leaves and flowers create some debris throughout most of the year. Recommended for general use in housing, parks, administrative, commercial and industrial areas. Do not concentrate or line streets with these trees as the litter becomes excessive. Use as individual specimens. CAUTION: DO NOT PLANT CLOSER THAN 10 FEET FROM BUILDINGS, POWER, SEWER, OR WATERLINES, SIDEWALKS AND ROADS.

Angels Trumpet
Datura candida

Jacaranda
Jacaranda acutifolia

All Grid Squares in Close-up Photos are 1" square

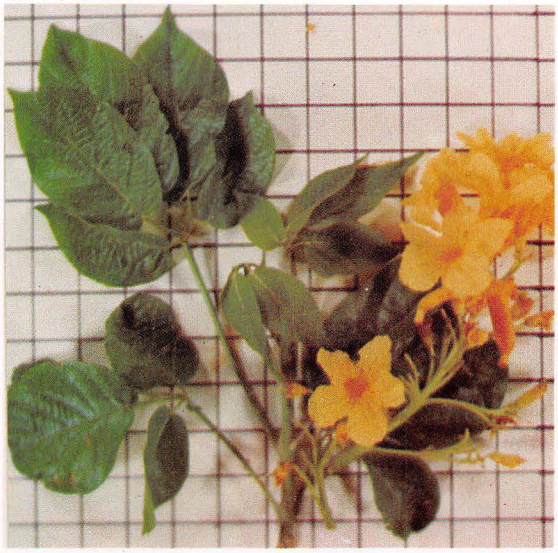
Pink Tecoma
Tabebuia pentaphylla

Common Name: Gold Tree
Scientific Name: Tabebuia donnell-smithii
Other Names: Prima Vera, Cybistax donnell-smithii
Mature Height: up to 80 feet, usually 40
Crown Spread (30 years): 30 feet
Flowers: bright yellow ("gold"); variable times from January to June
Grows at Elevation: 0-1,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty) shallow, poor, wet, or deep soil
Remarks: Introduced to Hawaii. Native to Mexico and Central America. Once a year sheds all leaves and replaces them with a complete cover of flowers which lasts about 2-3 months. Low to medium maintenance. Grows fairly rapidly. Do not concentrate this species. It should be used as a single tree for striking effect. Recommended for general use in housing, parks, golf courses, school grounds, administrative, commercial and industrial areas. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, SIDEWALKS, ROADS, POWER, SEWER, OR WATERLINES.

Common Name: African Tulip
Scientific Name: Spathodea campanulata
Other Names: Fountain Tree
Mature Height: up to 80 feet, usually 40
Crown Spread (30 years): 30 feet
Flowers: orange to scarlet, most of the year
Grows at Elevation: 0-2,500 feet
Rainfall: 30" + (or watered)
Soil: grows in fairly salty, sandy, shallow, poor, or deep soil.
Remarks: Introduced to Hawaii. Native to tropical Africa. Grows rapidly. Medium to high maintenance. Drops thick juicy, flowers and pods much of the year, which creates excessive litter. Litter tends to make sidewalks slippery. Do not concentrate this species, both because of excessive litter and because they tend to lose their striking effect. Use as single specimen trees. RECOMMENDED FOR USE IN HOUSING, PARKS, GOLF COURSES, SCHOOL GROUNDS AND SIMILAR AREAS. DO NOT PLANT CLOSER THAN 15 FEET FROM BUILDINGS, SIDEWALKS, ROADS, OR 20 FEET FROM POWER, SEWER, OR WATERLINES.

Common Name: Ixora
Scientific Name: Ixora spp.
Other Names: Popo-lehua (Hawaii)
Mature Height: 2 to 15 feet
Crown Spread (30 years): 10 feet, but not critical; easy to trim.
Flowers: small, deep red, pink, orange, or yellow; in large clusters
Grows at Elevation: 0-2,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy, poor, or deep soil
Remarks: Introduced to Hawaii. Native to Asia and the Pacific. Low Maintenance. Recommended for general use in administrative, commercial, industrial, park, golf course, or housing areas; for borders, hedges, or as single plants. DO NOT PLANT CLOSER THAN 4 FEET FROM BUILDINGS.

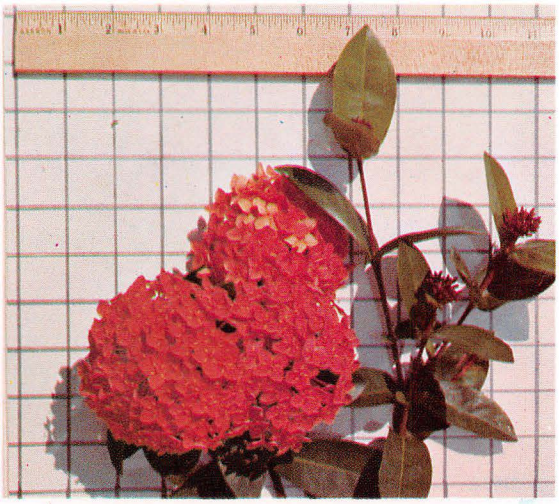
Gold Tree
Tabebuia donnell-smithii



African Tulip
Spathodea campanulata

All Grid Squares in Close-up Photos are 1" square

Ixora
Ixora spp.



GRASSES & GROUND COVER

Common Name: Seashore Paspalum
Scientific Name: Paspalum vaginatum
Mature Height: 6-12 inches
Flowers: inconspicuous
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, salty, shallow, poor, wet or deep soil.
Remarks: Introduced to the Hawaiian Islands. Grows well along shorelines or pond edges. Often used to control erosion on ditch banks. Low maintenance. Plant runners or stolens. Use a complete fertilizer 20 lbs/1,000 sq feet.

Common Name: Hilo Grass
Scientific Name: Paspalum conjugatum
Mature Height: 12-18 inches
Flowers: inconspicuous
Grows at Elevation: 0-4,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced from tropical America. A coarse grass, sometimes used for lawns in wet areas. If well mowed and fertilized, a good cover for parks and parade grounds. Medium maintenance. Usually not planted, but may invade areas, especially Bermuda grass lawns. Use a complete fertilizer 20 lbs/1,000 sq feet.

Common Name: St. Augustine Grass
Scientific Name: Stenotaphrum secundatum
Other Names: Buffalo Grass
Mature Height: 2-6 inches
Flowers: inconspicuous
Grows at Elevation: 0-3,000 feet
Rainfall: 40" + (or watered)
Soil: grows in sandy, slightly salty, shallow, poor, wet, or deep soil.
Remarks: Introduced from south east U.S.A. A coarse, creeping grass good for beach and shaded areas. Tends to creep into flower beds but shallow rooted and easy to control. Attacked by webworms. Low maintenance. Mow at 1½ to 2½ inches height for best lawn. Plant stolons at 12" spacings. Use a complete fertilizer 10 lbs/1,000 sq feet to establish, plus 1 lb nitrogen every 60 to 90 days.

Common Name: Common Bermuda Grass
Scientific Name: Cynodon dactylon
Other Names: Manienie
Mature Height: 2-8 inches
Flowers: inconspicuous
Grows at Elevation: 0-3,000 feet
Rainfall: 15" + (or watered)
Soil: grows in sandy (not salty), shallow, poor, wet, or deep soil. Best in fertile moist soil.
Remarks: Introduced from the eastern hemisphere. Recommended for lawns, parks, and erosion control. Withstands heavy foot traffic. Attacked by army and webworms. Low maintenance. Plant stolons at 12" spacings; seeds 1-2 lbs/1,000 sq feet. Use complete fertilizer 20 lbs/1,000 sq feet to establish. Keep well watered until established.

Common Name: Tiftan
Scientific Name: Cynodon dactylon hybrid
Other Names: Tifgreen, Tifdwarf
Mature Height: 2-6 inches
Flowers: none
Grows at Elevation: 0-3,000 feet
Rainfall: 25" + (or watered)
Soil: grows in sandy (not salty), shallow, poor, wet, or deep soil. Best in fertile moist soil.
Remarks: Bermuda grass hybrids developed in in South East U.S.A. Used on golf courses. High maintenance. Needs weeding. Use a complete fertilizer 20 lbs/1,000 sq feet.

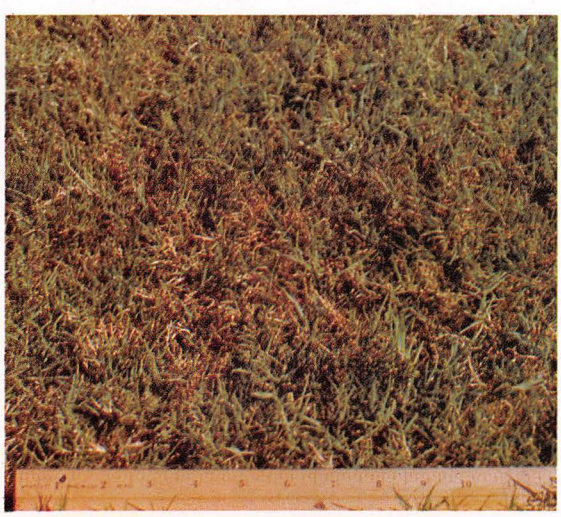
Seashore Paspalum
Paspalum vaginatum

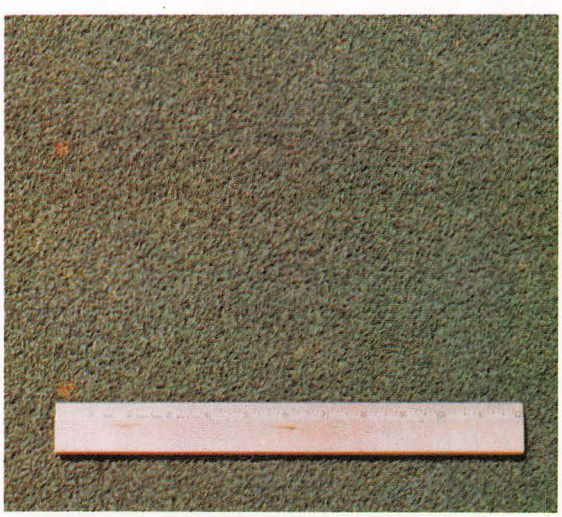
Hilo Grass
Paspalum conjugatum

St. Augustine Grass
Stenotaphrum secundatum

Common Bermuda Grass
Cynodon dactylon

Tiftan
Cynodon dactylon hybrid





Common Name: Kikuyu Grass
Scientific Name: Pennisetum clandestinum
Mature Height: 6-18"
Flowers: inconspicuous (does not flower at lower elevations in Hawaii).
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty) shallow, poor, wet, or deep soil. Best in fertile, moist soil.
Remarks: Introduced from Africa. Suitable for large lawns such as parade grounds, ground cover, cattle pasture, and as an erosion control cover. Withstands heavy foot traffic, will invade flower beds. Not recommended for small home lawns. Medium maintenance. Plant stolons at 12" spacings. Use a complete fertilizer 20 lbs/1,000 sq feet.

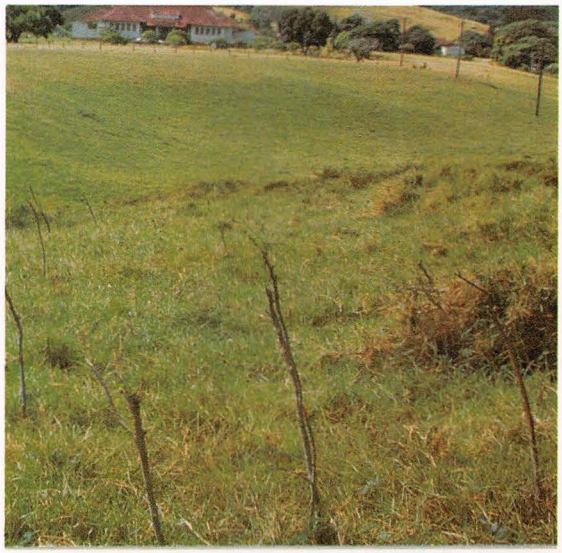
Common Name: Pangola Grass
Scientific Name: Digitaria decumbens
Mature Height: 12-18"
Flowers: inconspicuous
Grows at Elevation: 0-4,000 feet
Rainfall: 30-100" annually (or watered)
Soil: grows in sandy (not salty), shallow, poor, wet, or seep soil.
Remarks: Provides very rapid cover; very good for erosion control on eroding or scarred areas. Recommended for large areas, hillsides, eroded areas. Not recommended for small home lawns. Low maintenance. Plant stolons - seed is not viable. Plant twelve inches apart. Use complete fertilizer 20 lbs/1,000 sq feet.

Common Name: Centipede Grass
Scientific Name: Eremochloa ophiuroides
Other Names: Honan grass
Mature Height: 6 inches
Flowers: inconspicuous
Grows at Elevation: 0-2,500 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty) shallow, poor, wet, or deep soil.
Remarks: Introduced from Asia. A creeping, medium-textured grass which forms dense sod. Shade tolerant. Resists invasion by weeds and other grasses. Low maintenance. Attacked by grass webworm. Plant stolons at 12 inch spacings. Seed at ½ lb/1,000 sq feet. Mow at 1-2 inches height for best lawn. Use complete fertilizer 10 lbs/1,000 sq feet to establish, plus 4-6 lbs nitrogen per year for best lawn growth.

Common Name: Daylily
Scientific Name: Hemerocallis spp. (several species)
Mature Height: leaves 12-36 inches, flowers 18-36 inches
Flowers: yellow, orange, or red; single or double
Grows at Elevation: 0-4,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy (not salty), shallow, poor, wet, or deep soil. Best in fertile moist soil.
Remarks: Introduced from Europe and Asia. Several species and numerous hybrids. Very low maintenance. Plant at 12" spacings. Use complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Mondo Grass
Scientific Name: Ophiopogon japonicum
Mature Height: 6-12 inches
Flowers: tiny blue or white (rarely flowers)
Grows at Elevation: 0-2,000 feet
Rainfall: 25" + (or watered)
Soil: grows in sandy (not salty), sahllow, poor, wet, or deep soil. Best in fertile moist soil.
Remarks: Introduced from Asia. Good grass substitute, especially for small, irregular, shady areas. High maintenance. Must be hand weeded. Will not stand much foot traffic. Plant at 12" spacing. Use complete fertilizer 20 lbs/1,000 sq feet.

Kikuyu Grass
Pennisetum clandestinum



Pangola Grass
Digitaria decumbens

Centipede Grass
Eremochloa ophiuroides

Daylily
Hemerocallis spp.

Mondo Grass
Ophiopogon japonicum

Common Name: Portulaca
Scientific Name: Portulaca grandiflora
Other Names: Moss Rose
Mature Height: 6 inches
Flowers: various colors, both single and double, look like small roses
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, shallow, poor or deep soil. Must be well drained.
Remarks: Fast growing use on level to gentle slopes. Withstands hot, dry conditions and salt air. Best in full sun flowers do not open completely in shade or cloudy conditions. Low maintenance. Plant at 6-12 inch spacing. Use a complete fertilizer 10 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Plumbago
Scientific Name: Plumbago capensis
Mature Height: 48 inches
Flowers: showy purple
Grows at Elevation: 0-2,000 feet
Rainfall: 25" + (or watered)
Soil: grows best in fertile, moist, slightly acid soil.
Remarks: A creeping plant with dark green leaves. Grows in full sun or partial shade. Medium maintenance. Plant growing plants or rooted cuttings at 12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Lippia
Scientific Name: Lippia nodiflora
Other Names: Phyla nodiflora
Mature Height: 6 inches
Flowers: small, lilac or white
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy, shallow, poor or deep soil. Must be well drained.
Remarks: A creeping plant used for ground cover. Grows fast, withstands hot, dry conditions and salt air. Tolerates heavy foot traffic. Medium maintenance. Plant cuttings at 12-18 inch spacings. Use a complet fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Sedum
Scientific Name: Sedum confusum
Mature Height: 12 inches
Flowers: yellow, in dense clusters
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: grows best in sandy, moist soil.
Remarks: Leaves thick, roundish, pale green. Grows in full sun or partial shade. Tolerates dry sites. Medium maintenance. Recommended for trim and irregular areas. Plant at 12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Dichondra
Scientific Name: Dichondra repens
Mature Height: 3 inches
Flowers: inconspicuous
Grows at Elevation: 0-4,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy, shallow, poor, or deep soil. Must be well drained.
Remarks: Introduced from the South Pacific Bright green, roundish leaves form a dense mat. Medium maintenance. Plant seed or plugs at 12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

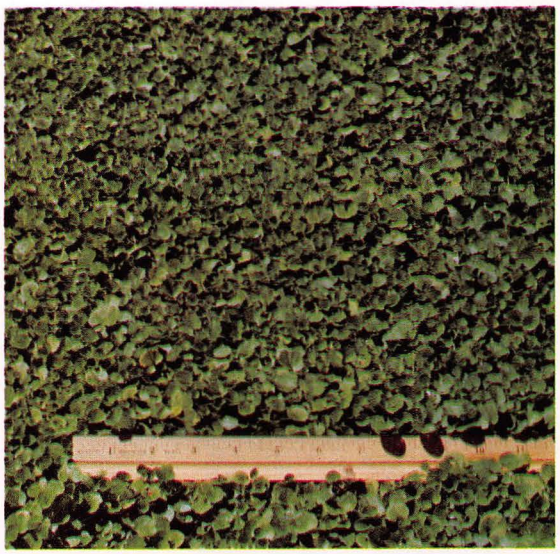
Common Name: Trailing lantana
Scientific Name: Lantana montevidensis
Mature Height: 12 inches
Flowers: small, lavender; year around
Grows at Elevation: 0-3,000 feet
Rainfall: 25" + (or watered)
Soil: grows in sandy, shallow, poor, wet or deep soil.
Remarks: Introduced from South America. A trailing shrub which grows and blooms best in full sun. Recommended for use on slopes. Medium maintenance. Plant rooted cuttings at 12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Portulaca
Portulaca grandiflora

Sedum
Sedum confusum

Plumbago
Plumbago capensis

Dichondra
Dichondra repens



Lippia
Lippia nodiflora

Trailing Lantana
Lantana montevidensis

Common Name: Carpet Bugle
Scientific Name: Ajuga reptans
Mature Height: 4-12 inches
Flowers: small, blue, on spikes
Grows at Elevation: 0-3,000 feet
Rainfall: 30" + (or watered)
Soil: grows in sandy, poor, wet, or deep soil.
Remarks: Forms a dense carpet. Grows well in full sun or shade. Can be mowed. Medium maintenance. Plant young plants at 12 inch spacing. Use complete fertilizer 10 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Asystasia
Scientific Name: Asystasia gangetica
Mature Height: 12 inches
Flowers: light violet or white, in clusters
Grows at Elevation: 0-500 feet
Rainfall: 15" + (or watered)
Soil: grows in sandy, shallow, poor, wet, or deep soil.
Remarks: Introduced from Malaya and Africa. Grows in full sun or partial shade. Good showy cover for hot, dry, rocky hillsides.. Medium maintenance. Can be a pest in adjacent plantings since it volunteers from seeds. Plant at 18 inch spacings. Use complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Cape Marigold
Scientific Name: Dimorphotheca sinuata
Mature Height: 4-12 inches
Flowers: yellow, daisy-like
Grows at Elevation: 0-3,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, shallow, poor or deep soil.
Remarks: Foliage is a gray-green and looks like a watermelon plant. Medium maintenance. Plant at 6-12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Ruellia
Scientific Name: Ruellia ciliosa
Mature Height: 2-12 inches
Flowers: trumpet shaped, blue or white with purple midveins
Grows at Elevation: 0-3,000 feet
Rainfall: 25" + (or watered)
Soil: grows in sandy, shallow, poor, wet or deep soil.
Remarks: A vigorous, dense, showy cover. Recommended for use on slopes and on level areas for ground cover. Medium maintenance. Plant at 18-24 inche spacing. Use complete fertilizer at 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Trailing gazania
Scientific Name: Gazania uniflora leucoleana
Mature Height: 6-12 inches
Flowers: yellow, daisy-like flower; most of the year
Grows at Elevation: 0-3,000 feet
Rainfall: 25" + (or watered)
Soil: grows in sandy, shallow, poor, or deep soil. Must be well drained.
Remarks: Fast growing, withstands hot, dry conditions and salt air. Best in full sun. Use for ground cover especially on slopes and irregular areas. Medium maintenance. Plant at 8-12 inch spacings. Use complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Common Name: Dolocus
Scientific Name: Dolocus hosei
Mature Height: 6-12 inches
Flowers: inconspicuous
Grows at Elevation: 0-2,000 feet
Rainfall: 20" + (or watered)
Soil: grows in sandy, shallow, poor, wet,

Remarks: Native to the far east. Forms a dense cover that will generally choke out weeds or competition. Low maintenance. Plant at 6-12 inch spacings. Use a complete fertilizer 20 lbs/1,000 sq feet. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER.

Carpet Bugle
Ajuga reptans

Ruellia
Ruellia ciliosa

Asystasia
Asystasia gangetica

Trailing Gazania
Gazania uniflora leucoleana

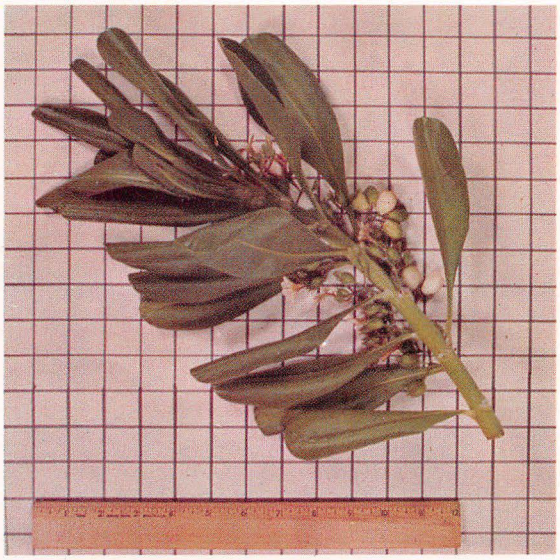
Cape Marigold
Dimorphotheca sinuata

Dolocus
Dolocus hosei

Common Name: Beach Naupaka (Hawaii)
Scientific Name: Scaevola taccada
Other Names: S. sericea, S. frutescens, S. plumieri, Nanaso (Guam)
Mature Height: 3-10 feet
Crown Spread (30 years): not applicable; a spreading shrub
Flowers: small, inconspicuous, white; all year. Flowers appear to be only half a flower. White globular fruit.
Wind Resistance: good
Grows at Elevation: 0-1,000 feet
Rainfall: 20" + (or watered)
Soil: grows in salty, sandy, poor or deep soil.
Remarks: Either native or a prehistoric introduction to Hawaii. Found also in many other tropical islands of the Pacific and Indian Oceans and the coasts of tropical Asia. Grows fairly rapidly. Low maintenance. Recommended for general use, especially near beaches, in administrative, commercial, industrial, park, golf course, or housing areas for informal borders and hedges. Not shade tolerant. DO NOT PLANT IN AREAS SUBJECT TO HIGH HUMAN LITTER. Debris such as bottle and pull tops, candy and cigarette wrappers and butts must be picked out by hand. DO NOT PLANT CLOSER THAN 10 FEET FROM WOODEN BUILDINGS OR OTHER WOODEN STRUCTURES. Moisture from the plant may cause wood rot and provide easy access for insects.

Common Name: Wedelia
Scientific Name: Wedelia trilobata
Other Names: Masigsig (Guam)
Mature Height: 3 feet
Flowers: yellow, year round
Wind Resistance: fair to good
Grows at Elevation: 1-3,000 feet
Rainfall: 40" + (or watered)
Soil: grows in fairly salty, sandy, poor or deep soil.
Remarks: Introduced to Hawaii. Native to tropical America. Grows fairly rapidly. Shade tolerant. Low maintenance. Recommended for use in any area on steep banks where mowing and maintaining a lawn would not be practical. NOT RECOMMENDED FOR USE IN AREAS SUBJECT TO HIGH HUMAN LITTER. Debris such as bottle and pull tops, candy and cigarette wrappers and butts must be picked out by hand. For best appearance it should be mowed or cut back once a year. NO PLANTING SPACE RESTRICTIONS.

Beach Naupaka
Scaevola taccada



Wedelia
Wedelia trilobata

All Grid Squares in Close-up Photos are 1" square

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